MAY
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Published Monthly in the Interests of Modern Production Finishing

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INDUSTRIAL FINISHES

Seventeenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVII, No. 7 **MAY, 1941** **$2.00 a Year**

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Letters from Readers...

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Cherry Stain

In March issue of INDUSTRIAL FINISHING we are very much interested in the article, "Finishing Hardwood Caskets" by Al Matlock, beginning on page 23. If you are able to secure the information, we would appreciate having you give us the name of the manufacturer who furnishes the materials referred to in that part of the article dealing with the finishing of cherry caskets. We are especially interested in the cherry non-grain raising stain and the mahogany stain.—E. C. Co. (Burial Cases.)

We are referring you to the author, who will give you the information immediately.—ED.

I. F. Articles in Demand

We sent out so much material from the March issue of INDUSTRIAL FINISHING, that we were unable to supply our clients with important items on pages 79 and 86. If you can send us these pages from one of your cut copies, we shall appreciate it very much. —R. H. B. & Co. (Business Paper Editorial service; Surveys and Reports.)

Walnut Filler

In March issue of INDUSTRIAL FINISHING you have an article entitled, "Finishing Hardwood Caskets" by Al Matlock. In that article he describes the method used in filling walnut, and you state that the name of the material used will be furnished upon request. We are very much interested in securing a suitable filler for walnut and would appreciate your sending the name of the material mentioned at your earliest convenience.—H. B. Co. (Wood Specialties).

The author of the article has been notified and is writing you direct about this.—ED.

Plastic Finish

We notice, on page 70 of January, 1941 issue, that there is a manufacturer now manufacturing a coating that will prevent the migration of the plasticizers out of plastic surfaces (marked 208). We are interested in a transparent material of this type.—W. A. Co. (Electric Lamps).

Information supplied.—ED.

Record Disc Lacquer

On page 78 of March issue there is a notation that the "L. R. Co." is interested in recording-disc lacquer. The field has been a specialty with us and a difficult one in which to keep the various customers from getting jealous of each other.

As an appetizer I would appreciate it if you would furnish us, in confidence, the correct name of the "L. R. Co." Possibly we are selling them. If we are not and they are the class of trade that we like to acquire, we will

"RESIST-ALL" *will . . .*

Resist all types of abuse. Positively **guaranteed** to withstand straight alcohol, liquors, fruit juices, boiling water, dilute acids, etc.

RESIST-ALL is **NOT** a lacquer, nor a varnish but it gives lacquer speed and toughness together with varnish body.

Order five gallons **today**—Satisfaction **Guaranteed.**

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Panels coated with Perfection Flat Varnish can be immersed in water for 30 days without turning white or showing any other ill effects. Write us and we'll send panels and samples—and also a panel in water for 30-day immersion test.

PERFECTION FLAT FINISHES contain no stearates or other flattening agents. They are made 100% from gum, hence are as clear as gloss varnish—entirely free from milky appearance of conventional flat varnish.

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for Lacquers and Synthetics . . .

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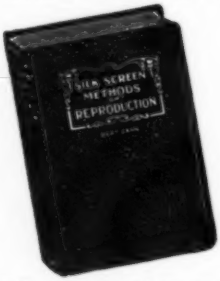

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Practical Publications, Inc.

222 East Ohio Street Indianapolis, Ind.

get in touch with them. We prefer this procedure rather than you advising them of our own name.—Randolph Finishing Products Co.

In the April issue of INDUSTRIAL FINISHING you printed an article entitled "Cub Salesman's Blunder Teaches Me A Lesson." We would like to have your permission to reproduce this interesting article in the May edition of our "National Paint Bulletin".—Stewart Research Laboratory.

Canvas-Covered Boats

The problem of finishing light-weight canvas-covered boats and canoes has come to us. We are wondering if you can help us out? The ordinary method of finishing this type of boat, by filling the canvas with a leaded filler, is much too heavy; consequently, we are trying to get away from this.

Can you give us any information on a cellulose lacquer finish, such as pyroxylin, or a resinous-base finish which will satisfy our needs? The undercoats may be clear and only the finish coats must be pigmented.—K. C. Co.

We are referring your inquiry to companies which have or claim to have materials suitable for the requirements you name.—ED.

Tumble Finishing

In your March issue, on page 7, there is an inquiry for tumble finishing equipment for japanning small parts. We are interested in the same problem and would appreciate it if you can advise where this equipment may be obtained.—C. C. Co. (Stoves).

We note on page 7 of your March, 1941 issue of INDUSTRIAL FINISHING that you give certain information concerning tumble finishing. We will appreciate it very much if you will give us similar information, as furnished to the "E. M. Co."—D. C. Co. (Lacquers, Enamels & Paints).

Portable Sanders

Will you please request the advertisers of sanding machines (see your publication, February, 1941, page 112) to send to Mr. F. C. D. of the Quebec Telephone & Power Corp. prices on a very small sanding machine to be used for removing the finish on wooden telephone boxes? Up to the present time they have been removing the finish by means of dipping the boxes in paint and varnish remover but this procedure does not take out of the wood all the stain used in the original finishing system.

We had hoped that the Canadian Fairbanks-Morse Co., Ltd., of this city (Montreal) would have carried some of those machines, but having received a negative reply we believe it better for the manufacturers, as listed, to get in touch direct with Mr. F. C. D.—C. I., Ltd. (Paint & Varnish Division).

Brush Bronze Finish

I am working with the W. H. P. Electric Fixture Co. of R————, Minn. We are about to go into the manufacture of fixtures that will need a finish called "brush bronze". I would like to know how this finish is obtained. Would you be so kind as to refer me to some paint manufacturer that could help me find this information?—S. W. H. (Lamp Dept.).

Wood-Patching Filler

On page 101, of INDUSTRIAL FINISHING for February, 1941, there is an article on "Wood Patching". Will you kindly supply formulas or the name of the manufacturer of the putty mentioned?—H. G. T.

The name and address of the manufacturer given by the author is being sent you by letter.—ED.

Aniline Dye

Will you kindly advise us the names and addresses of some of the leading manufacturers of aniline dye? We are interested in getting dyes of the lacquer and alcohol type, for sample purposes.—L. I. Co. (Mfrs. of Boxes).

"Hammered" Finishes; Bleaches

In the April issue of INDUSTRIAL FINISHING we notice an article under the heading of "Hammered Finishes." May we ask you to send us such information as you have on this article or the names of the manufacturers from whom we could secure the material and data governing its use?

Also, would you kindly send us the names of one or more manufacturers of the acids and methods of bleaching wood in the new modern homes?—L. P. Co. (Marine & House Paints).

Graining Roller

We would appreciate it very much if you could let us know if there is such a thing as an "imitation oak roller graining tool" 13-in. wide and approximately 18-in. in diameter. If so, where could we purchase same.—T.-H. Co.

Yes, graining rollers with the imprint of wood grain etched on their surfaces can be obtained, although the customary method of reproducing wood grain on plain surfaces is to use a smooth soft roller to pick up the graining ink from an etched copper plate. An article about this appears in April, 1941 issue of INDUSTRIAL FINISHING. In a letter we are submitting the names and addresses of suppliers of graining rollers.—ED.

Aircraft Lettering

Could you give me any information on the painting, spraying, lettering, etc., used in the airplane industry—using dope or lacquers, as used in the Army or Navy? Have you a book, pamphlet or pages from your little magazine that would help me?—E. R.

Tear sheets of an article on this subject, as published in INDUSTRIAL FINISHING, are being sent you by letter.—ED.

Book Wanted

Can you tell me of any up-to-date publication on baking enamels and color mixing? One of our representatives has been checking the libraries and finds that practically all of the books there are of rather ancient vintage, and he is eager to get some up-to-date literature for one of his customers.—D. L. Co.

Sound Deadener

We require a sound-deadener material for spray application to the interior of sheet-metal oil-burner hoods. We have tried the flock process with poor results. Please refer us to a source of supply.—B. G. Mfg. Co. (Production Engineering Dept.).

Custom Finishing

There is a possibility that in the near future we may have to "farm out" some work to be finished in white baking enamel. I would greatly appreciate your help in locating the names and addresses of job shops, particularly in the east, which might be able to do this work for us. Any information you can give me will help tremendously.—E. X. Co.

Special Finishes Wanted

Please send me any information you may have concerning crackle lacquer; also data on a lacquer which would be cigarette burnproof and alcohol proof. Please send prices on the above products.—D. R. Co. (Lacquering; Novelty Finishes).

Luminous Paint

Please advise where we can secure luminous paint.—S. P. Co.

Bleaching Materials

We are interested in securing bleach materials, especially for panel stock. We will appreciate your advising the names of manufacturers of such products.—A. F. Co. (Bank, Office & Store Fixtures).

Information given.—ED.

Paint Rejuvenator

Do any of your advertisers manufacture a paint mixer that is for the hardware trade to shake up ready-mixed paint before delivering same to customers?—H. W. S.

Yes, the Miracle Paint Rejuvenator Co., Inc., 500 Robert St., St. Paul, Minn.—ED.

Whirling Enameler

Kindly advise us the name of the manufacturer of a whirling enameler machine that operates like a cream separator, as referred to in a question published on page 10 of July, 1940 issue.—F. D. Co. (Displays).

Do you know if there is a reciprocating-action centrifuge machine available for coating very small metal parts? It has been reported to me that such a machine was manufactured under the name "Powers", but a check through directories fails to reveal such a machine.—H. V. W.

Probably you have in mind the "Speedip Enameler" advertised in INDUSTRIAL FINISHING (for example, see page 5, April issue) by Ronci Machine Co., Providence, R. I.—ED.

87% IS SEEING

KNOWING IS BETTER THAN GUESS-WORK

Psychological tests show that 87% of every first impression is the result of seeing the object. Impressions through all other senses—13%.

If 87% of the impression is gained through seeing, appearance is by far the greatest factor in determining the sale.

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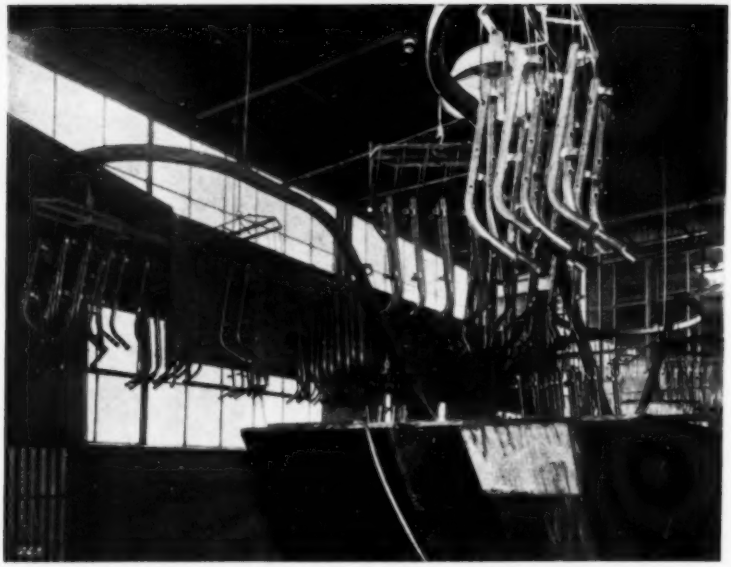


Fig. 1—The cold water and hot water rinse tanks. At right foreground, parts are descending into cold water tank: farther back they are leaving through a "hair-comb" spray of cold water; then they make a U-turn, dip into and leave the hot water tank. As they leave they pass through jets of compressed air coming from a row of small holes in the ½-in. pipe that extends along the top edge of the hot water tank, at the end. After leaving the rinse tanks these parts travel to the next room where they are dip coated.

Auto Parts Cleaned, Dip

A COMPACT, efficient and economical set-up for mechanically cleaning and dip-coating automobile parts, followed by baking the enamel coating, is in operation at the Franklin, Indiana, plant of Noblitt-Sparks Industries, Inc. Parts now in production include ignition cable conduits, breather pipes, oil filler tubes, water pipes, other tubular auto parts and hand-operated air pumps. These are all parts formed of sheet metal and are welded at the joints.

Ignition cable conduits are really metal tubes which enclose the insulated wiring that leads to the spark plugs of an automobile engine. Raise the hood of certain makes and models of automobiles or trucks and you will see one or two of them—two if it is a V-type engine. Each conduit has, along one side, a number of elliptical-shaped holes reinforced with zinc eyelets. Through each of these holes an insulated wire extends to a spark plug. Both ends of the

BY W. H. ROHR

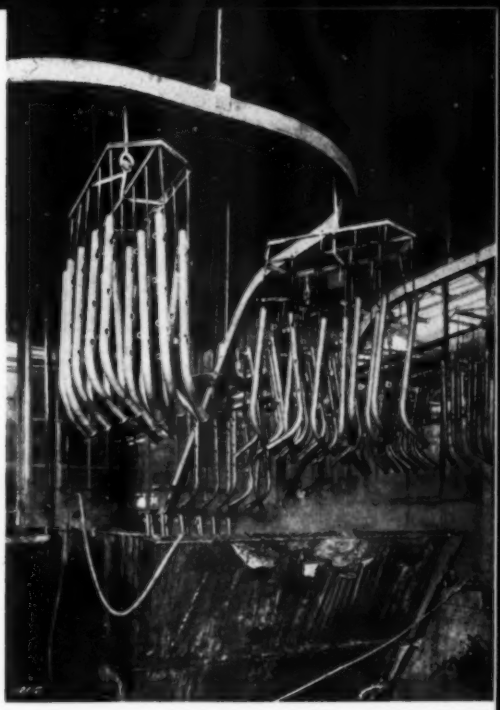


Fig. 2—Here you see parts hanging from racks, entering and leaving the large tank of alkali cleaning solution which is kept at boiling heat. The conveyor makes a U-turn just above the top level of the tank, keeping the parts submerged for 4½ minutes at conveyor speed of about 5-ft. per minute.

Coated and Oven Baked

tubular conduit are open. In production, one of the wiring holes is conveniently utilized for hanging the conduits to hooks under a rack which hangs from the overhead conveyor. This is shown clearly by the accompanying illustrations.

At the ends of factory assembly lines, after all forming and assembling operations have been completed, there are inspection stations. At these points all parts that pass inspection are loaded onto the overhead conveyor which carries them through the metal-cleaning tank, rinse tanks, drying area, dip-coating tank, oven and after-cooling area. Finished parts move on to the unloading station where another inspector examines them carefully. If they pass inspection—and if they are to receive only one coat of paint—they are immediately wrapped in paper and packed in cartons for shipment to automobile manufacturers.

If any parts do not pass inspection, they are laid aside in a truck.

When a quantity of rejected parts accumulate, they are reconditioned (sometimes lightly sanded), repainted and re-baked. However, careful precautions are taken constantly to prevent any condition that might cause rejects.

Parts that are intended to receive an additional coat of paint are loaded on trucks and later hung to the conveyor racks at a point just ahead of the paint tank. While most of the work is painted black, provision is also made for color jobs when and if they are specified.

A floor plan layout of the metal-cleaning room, paint room and conveyor line appears in the drawing marked Fig. 4. The oven, with all of its conveyor line, heating and ventilating equipment, is located above the paint room and to the right of same, so it occupies no floor space. The entrance and exit to the oven are in the ceiling of the paint room, as shown partially in Fig. 3 at the bottom of this page.

Parts to be cleaned and painted are loaded as they arrive at the inspection stations along the conveyor line. As many as 16 automobile parts can be hung from a single conveyor rack. The loaded conveyor line enters the cleaning-rinsing room at one corner and leaves at the opposite corner, as shown in Fig. 4. The conveyor dips down low enough to completely submerge the parts in the tank of cleaning solution, see Fig. 2. Then it makes a U-turn back again just above the tank level so that the parts in process remain submerged in the cleaning solution for 4½-minutes, with the conveyor traveling at a rate of approximately 5-ft. per minute.

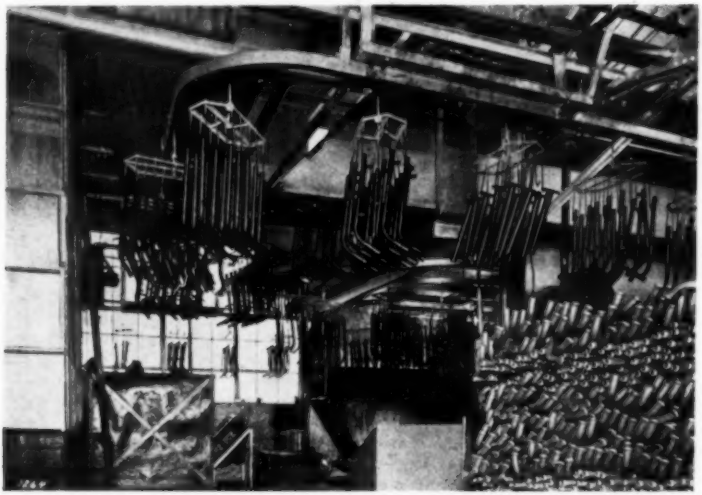


Fig. 3—View in dip-coating room. Dip tank appears in middle background. Direction of conveyor travel in background is from left to right; parts are coming in from the cleaning room at left. The conveyor makes a few U-turns after leaving the dip tank to allow flow-down, dripping and "setting" of paint; then it ascends into the overhead oil-fired oven for a 20-minute period of baking the paint at a temperature of 465° F.

The cleaning material is an alkaline solution prepared by mixing a well-known brand of commercial cleaning powder with water and bringing the temperature up to boiling heat. It is maintained at this temperature while cleaning operations are in progress. The contents of the huge tank are heated by large steam coils inside the tank. Continuous agitation of the cleaning solution is provided by jets of compressed air released through small holes in pipes that lay at the bottom of the tank. Floating sludge that foams up to the top of the tank is skimmed off or allowed to run off by overflow from time to time. At regular intervals the tank is completely emptied and the interior is scraped, wiped and flushed out to make it thoroughly clean. Adequate drainage facilities are provided under a wooden platform that surrounds the base of the three steel tanks.

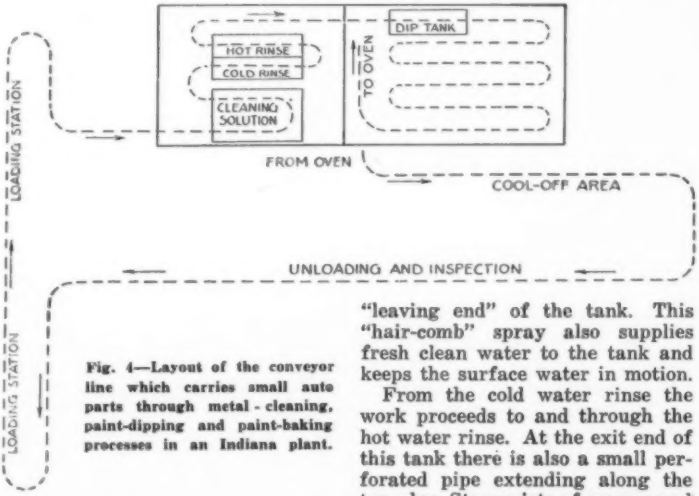


Fig. 4—Layout of the conveyor line which carries small auto parts through metal-cleaning, paint-dipping and paint-baking processes in an Indiana plant.

The Rinse Tanks

Upon leaving the hot cleaning solution the work makes a U-turn, dips into and passes through the cold water rinse tank. As it moves upward at an angle from the surface of the cold water it passes through a gentle "hair-comb" spray of cold water which comes from small holes in a water pipe that extends along the top edge of the "leaving end" of the tank. This "hair-comb" spray also supplies fresh clean water to the tank and keeps the surface water in motion.

From the cold water rinse the work proceeds to and through the hot water rinse. At the exit end of this tank there is also a small perforated pipe extending along the top edge. Strong jets of compressed air come from the row of little holes in this pipe. These jets of air blow partly against the surface of the water—keeping it clean and in motion where the work is leaving—but mostly against the metal parts hanging from the conveyor. This air spray helps to speed up the drying of the completely rinsed work. The rinse tanks appear in Fig. 1.

Between the last rinse and the paint-dipping tank the conveyor carries work through two strong blasts of warm air supplied by two

large unit heaters, one blowing from above and the other from below. Each unit is pointed at an angle against the direction of conveyor travel. As a result there is no possibility of entrapped moisture clinging to the insides of some of the tubular parts when they enter the paint dip. (If you will look closely at the left in Fig. 3, you will see both unit heaters.)

Paint Tank Protection; Conditioning the Paint

The paint tank is protected with hinged metal covers which are held open by fusable links. Supplementing this fire-protective device are two Foamite fire extinguishers suspended above the middle of the tank. These extinguishers are prevented from spilling their contents into the tank by fusable links. A fire in or near the paint tank would immediately cause these protection devices to function. A switch outside the paint room can be pulled to stop the conveyor.

At the entering end of the paint dipping tank there is a circulating pump with all necessary piping and valves. The arrangement is such that this pump draws paint from the bottom of the tank and discharges it in a steady continuous stream at the top of the tank. This keeps the paint circulating and uniform in viscosity throughout the tank. Viscosity tests are made with a viscosity cup several times a day.

When production is stopped at noon and at night certain paint valves are closed, others are opened and a quantity of thinner is run through the circulating pump and discharge pipe. The pump is always left full of thinner while production is stopped for one hour or more. With the type of paint material and thinner (oleum spirits) now used, the thinner that is

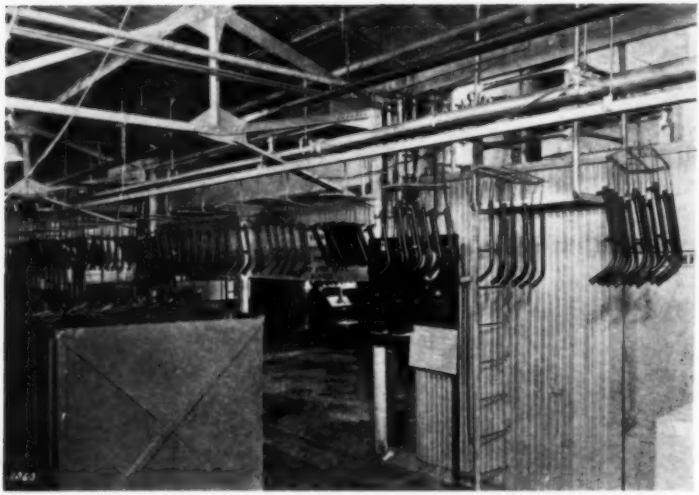


Fig. 5—Conveyor line after it leaves the paint room and oven; this is the cool-off area.

run through the pump and left in at noon and night is all that needs to be added to the paint to keep it at its correct viscosity. This usually amounts to six gallons daily.

After leaving the dip tank the work travels over a drainboard and then doubles back and forward and around U-turns in the paint room, as shown by the drawing marked Fig. 4. The heavy flow-down of paint is completed by the time the work passes beyond the long drainboard. Beyond this point the floor is covered with sawdust to catch the occasional delayed drips of paint. The interval of time that elapses between dipping and the entrance of parts into the oven is 30 minutes.

Engineering Data on System

The following engineering data on the oven, conveyor and heater installation are supplied through courtesy of Mr. C. M. Mackenzie, Chicago representative of the J. O. Ross Engineering Corporation:

The oven temperature is maintained at 465° F. for a 20-minute bake.

Conveyor turn-arounds are 32-in. in diameter — with the hangers spaced on 24-in. centers. We have figured 15 pieces per hanger for a total of 15-lbs. to each hanger, with a production of 2160 pieces per hour. Conveyor speed is 5-ft. per minute with a total of 127-ft. in the oven.

Total steel load, including work and conveyors, is approximately 4,000-lbs. per hour.

The exhaust is based on 11 gallons of paint per hour and the volume is in accordance with the Underwriters' specifications.

The heaters consist of two sections of Ross N-2 direct oil-fired air heaters, complete with all safety and modern control equipment, as specified by the Underwriters.

The safety flame protection unit is the new system devised approximately two years ago . . . The operation of this safety flame unit is based on the intesity of light in the oil flame and can be used only for oil, since its operation is based on the yellow part of the spectrum. This unit consists of a control panel with a pre-set time delay which is operated by flame protection unit.

The flame protection unit consists of a stainless steel tube approximately 5-in. long pointing to the center of the continuous burner. At the back end of this tube is a circular glass bulb the back surface of which is silverized. In front of this spherical silverized surface is a spiral spring made of very fine wire. The bottom of the bulb contains a small pool of mercury into which the end of this spring moves when the spring is expanded by heat. In other words, the light from the flame is reflected by the spherical silverized surface onto the center of this spiral spring, expanding it so that the end of the spring will rest in the pool of mercury, thus completing the circuit. When the light is extinguished for any reason, the spring contracts and is pulled out of the mercury thus breaking the circuit. This requires approximately 9 to 15 seconds, depending upon the setting, which is adjustable by means of an iris shutter in front of the bulb.

The main supply and recirculating fan was picked to deliver approximately 7500-c.f.m., insuring more than 3½ air changes per minute in the oven, thus giving a uniform temperature distribution.

On top of the heaters we have a heavy-gauge sheet-metal header completely insulated, and each

(Continued on page 82)

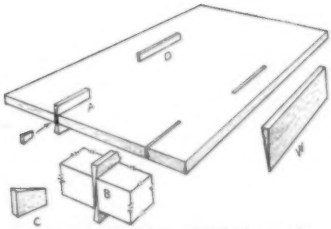
« Repairing CHECKS, CRACKS AND SCRATCHES IN GOOD Furniture »

BY T. J. PIRRUNG

CRACKS and checks in the surfaces of wood products are, to an extent, an unavoidable and sometimes an expensive annoyance. However, they need not remain an obvious flaw in the article if they are properly repaired before the first finishing operation—or after the stain has been applied.

I have had to contend with this problem for 20 years. After trying many methods of repairing these defects, I have found only one that is entirely satisfactory for good furniture. Take, for example, a table top such as that illustrated in the accompanying drawing. It has end checks and center cracks in the wood.

The first step is to saw into the end check along its entire length, using a smooth cutting saw. Next, select two wedges, like the enlarged one marked *W* in the illustration. Make these wedges of the same kind of wood and grain as the part to be repaired; cut them to the length of the check. Apply glue and drive one into the saw kerf from the top and one from the bottom as shown at *A* in the drawing.



Enlarge the cracks and fill them with wedges made of the same kind of wood.

These wedges must be tapered short enough so that the thick edge of one will more than close the saw kerf tightly without allowing the thin feather edge of the other wedge to come through to the opposite side. This, then, will leave a small opening between wedges at the end of the table top, as shown in the exaggerated view marked *B*. To fill this neatly, cut another wedge *C*, spread glue on the entering sides and drive it into the end. These three wedges will close the saw kerf completely.

The crack in the mid-length of top should be enlarged by using a sharp thin wide chisel—one with its cutting edge ground to a long bevel. Then select another wedge like *W*, cutting it the required length, spread glue on it and drive it into the enlarged crack, as shown in *D*.

When the glue has set and these

"wedged repairs" are perfectly dry, cut off the hammered parts of the wedges so they protrude only 1/32 to 1/16-in. Before sanding down these protruding wedges flush with your table top, be sure that ample time has elapsed to insure complete evaporation of all glue moisture. Usually this requires about 24 hours. If the moisture is not completely dried out, the wedges will eventually shrink below the surface level.

This method is slightly more expensive than many of those commonly used, but I believe the results warrant the additional cost, especially on quality products. This kind of repair is permanent and, if it is skillfully done, it can not be detected.

Repairing Scratches in Lacquer or Varnish Coats

Scratches in lacquer and varnish finishes, when they have not penetrated the stain coat, can be repaired without removing the finish —and, if the work is skillfully performed, the most critical observer will be unable to detect its location. Scratches of this character are frequently deeper than the finish film itself, as the wood is often pressed down by the object causing the scratch, even though the stain coat may not be broken or marred.

Inasmuch as the scratch represents a loss of lacquer or varnish, it is axiomatic that a replacement of the removed varnish or lacquer, with the same material, will restore the original conditions—assuming, of course, that the replacing material becomes a part of the original film. This can be accomplished by taking a small striping brush and spreading lacquer or varnish (whichever constitutes the original film) in the scratch. This laying on of material with a brush will have to be repeated a number of times, depending upon the depth of the scratch. All applications after the first must be laid on after the previous application has become dry.

The repeated applications of material build up a film, not only on the scratch but also on the surface adjoining the scratch. This surplus material must be sanded off with sandpaper which is folded over a felt-padded block. The sanding must be sufficient to show a complete dull surface at and around the scratched area. If the location of the scratch still shows glossy, it will be necessary to make additional applications of lacquer or varnish and again sand the surfaces. When the built-up finish over the scratch finally shows dull after sanding, you have positive proof that the repair job has been perfectly accomplished.

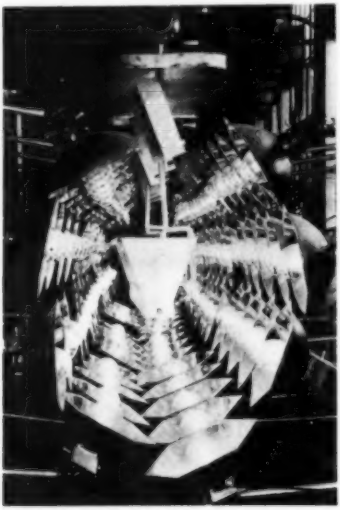
Now instead of a scratch, a sanded spot appears on the surface, where the scratch was originally located. To properly condition this area it is necessary to coat the spot and, when it is dry enough, it should be rubbed. It is still better practice to coat the sanded spot and, when it is dry, coat the entire surface of that part of the article that had the scratch; then rub. When coating the sanded spot, the coating should be applied with spray, heavy over most of the spot but blended out to a very thin mist coating at the edges, so that there will be no definite lap to show.

This method of repairing a damaged place assures perfect results. The elapsed time from start to finish of the repair is the only objectionable feature. In the case of varnish it is necessary to make the applications, which only require a few seconds, many hours apart. However, the repair cost is trifling

compared to removing the finish and building up a complete new film. If varnish or lacquer has been allowed to thicken by exposure to the air, the number of striping brush applications can be materially reduced.

Considerable skill is required and the method should be practiced before being tried on valuable articles. The beginner should spray a coat, as previously described, over the sanded spot after each sanding in order to avoid cutting through the film.

Editor's Note: The author of this article is an experienced foreman finisher and we feel sure that he is also familiar with other and more rapid methods of repairing open cracks in wood and scratched places in lacquer and varnish films; for example, the use of crack filler for open cracks in wood, and the burning in of stick lacquer or stick shellac to fill scratched places in a lacquer or varnish film. Also, we know some expert wood finishers who use a low-pressure shielded spray to apply lacquer for the building up of scratched places in lacquer finishes—using the spray instead of a striping brush.



The above illustration shows how infrared was installed to bake white synthetic enamel on fluorescent trouffer units. Fostoria Para-Sphere equipment was built into flat banks opposed, 30-in. between banks, moved along by a conveyor which holds trouffers in the vertical plane. Tunnel is 13-ft. in length and 52-in. in height. Fluorescent canopies are 48-in. long by 2-ft. 5-in. wide; outside is finished in aluminum; inside is finished in white. A total of 62-kw. was required for the job. Photo courtesy Fostoria Pressed Steel Corp., Fostoria, Ohio.

Binks Mfg. Co. Branch Offices

Binks Mfg. Co., manufacturer of complete modern spray equipment, announces the opening of new branch offices at Cincinnati, Ohio (in Carew Tower), Indianapolis, Ind. (in Occidental Bldg.), and San Diego, Calif. (at 3585 Fourth St.).

New street addresses at the other branches are:

Pittsburgh, Penna.....200 Point Bldg.
Springfield, Mass.....74 Eleanor St.
Syracuse, N. Y.....2522 Midland Ave.

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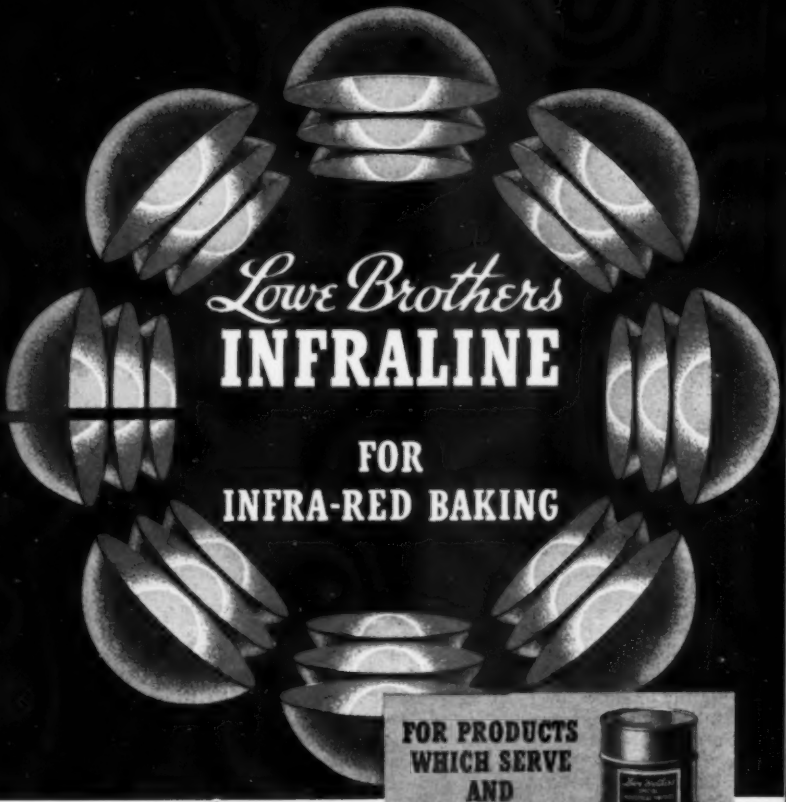

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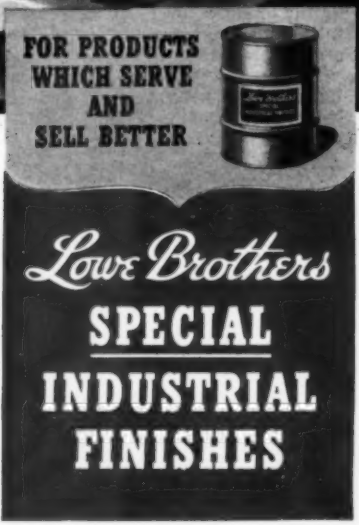


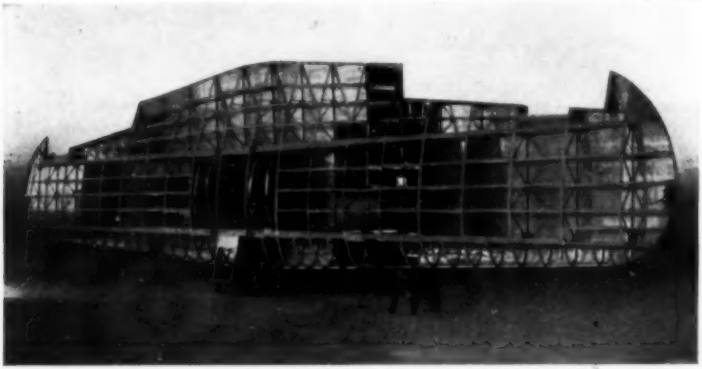
During the past few months some controversy has arisen about the finishing of plastic and plywood surfaces on airplanes. Probably this interest has been created by the fact that plastic and plywood airplanes are being developed on a larger scale than ever before. It is with this object in view that I feel prompted to write the following article.—The Author.

BY
WILLIAM L. PLUMMER

The Finishing of Plastic

THERE are many different methods of applying finishes to plastic products. I have found that most of the systems outlined by the manufacturers of paint materials are far too complicated for a good production schedule.

By referring to plastic products, I am speaking of the type that is being used by the aircraft manufacturers today. This type of plastic consists of three layers of plastic veneer that are glued together with various different types of resinous materials. The finished product has a hard exterior finish, therefore it does not require a wood sealer. However, the exterior, as



Plywood skin partly on surface of wing.

A Lockheed Orion . . . has a plywood skin and is covered with fabric.

and Plywood Aircraft . . .

a rule, is not very smooth and must be surfaced. The procedure for this is as follows:

Dry sand the exterior resinous finish with a No. 120 Cutrite sandpaper. This sanding will give the succeeding coats of surface a tooth in the resinous material; this will help the adhesion of the surfacer to the resinous material immensely.

The type of surfacer I suggest is white or grey surfacer (name of material furnished on request) . . . It has a rapid build and sands readily. The first coat of surfacer sprayed should be a cross coat. This is obtained by spraying the surface in one direction and then cross-spraying this coat—spraying in the other direction. This coat should be allowed to dry for several hours, after which it can be dry-sanded with No. 150 Cutrite sandpaper. It should be sanded as smoothly as possible.

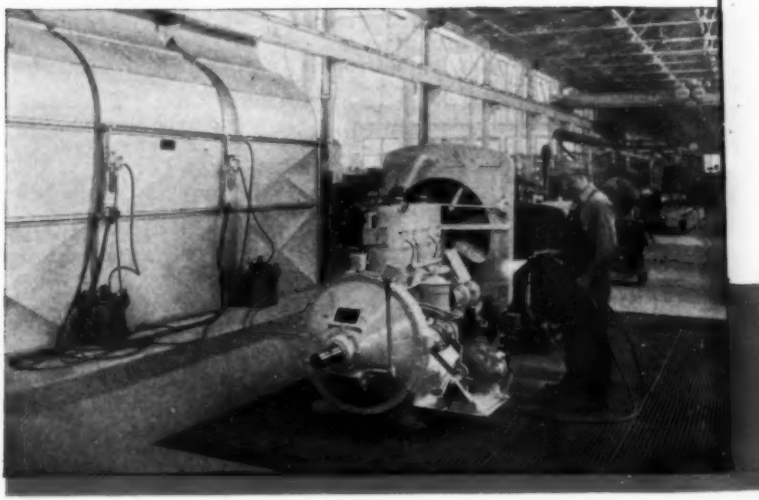
When this sanding is finished, the surface should be wiped clean and given a heavy cross coat of surfacer. This coat should be allowed to dry over night. A guide coat should be sprayed next. This consists of a light fog coat of black lacquer, which serves as a guide for uniform sanding. This sanding will consist of a wet sanding with No. 280 wet-or-dry sandpaper. When this operation is finished, the surface should be thoroughly cleaned and then sprayed with the finish coats.

The finish coats may be either lacquer or enamel. As a matter of preference, I believe a fast-drying synthetic enamel job is far superior to a lacquer job. Synthetic requires but two coats, and has a much more desirable finish from the standpoint of long life, gloss and flexibility.

Aircraft Plywood Finish

The finishing of plywood in lacquer or enamel is a comparatively easy process, but the basic steps

Here's the modern DeVilbiss Spray System that has stepped up finishing speed for this Milwaukee engine builder.



● American Industry has the drive—the energy—the power to get phenomenal results. But too often it takes three putts on the green—loses at the finish.

But there's no lost time—no waste motion—in the finishing line of this engine manufacturer. He has modernized his finishing 100% for all-out production with the latest DeVilbiss Spray System. Guns that spray at top speed. Material feeds that supply materials as fast as needed. Air compressors and transformers that deliver plenty of air at correct working pressure without faltering. Spray booths that quickly and completely remove all dust and spray vapor.

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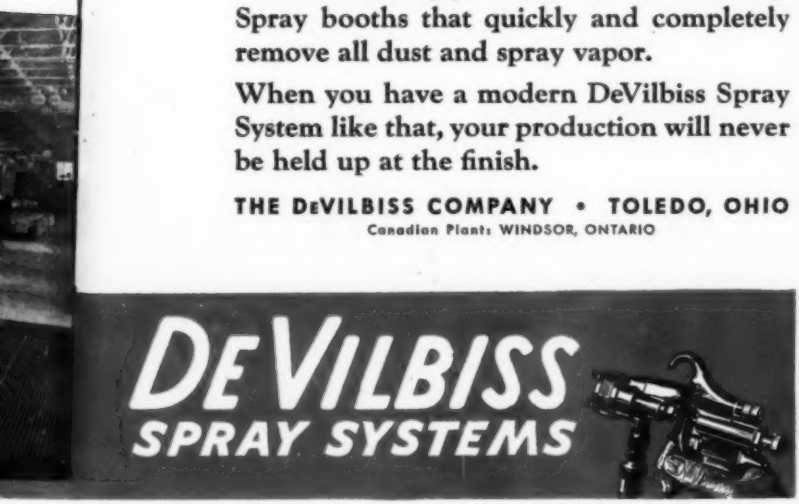


are real important. The first step is to brush Lionoil, which is a very good wood sealer, on to the plywood and then wipe it practically dry with rags. The next step is to spray a single coat, in one direction, of surfacer. When this coat has dried for three or four hours, dry-sand the surface with No. 120 Cutrite sandpaper. The surface can then be sprayed with a heavy cross-coat of surfacer. The procedure from here on is exactly the same as outlined under the process of finishing recommended for plastic surfaces.

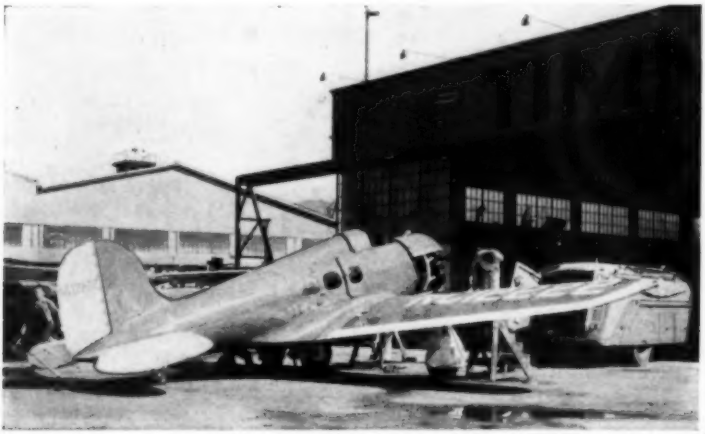
Fabric-Covered Plywood Surfaces

This type of finish, in my opinion, is by far the most practical method for finishing a plywood surface. I will admit that the weight of the finished job will be slightly more than that which has no fabric, but the job will stand up much longer and the risk involved of getting a poor finish is reduced to a minimum. The system of application is as follows:

The plywood surface is given a brush coat of Lionoil and then wiped off immediately with rags. This Lionoil coat should set for two or three hours and then be followed with three brush coats of clear nitrate dope. One half hour of drying time should be allowed for each coat of dope. The job is now ready for the fabric.

There are several different kinds of fabrics that may be used, among them being, balloon cloth, grade A Flightex and unbleached muslin. Balloon cloth, in my estimation, is a preferable fabric due to its light weight and strength. The fabric is stretched over the complete job and held in place by tacks. It is then dampened with water. This shrinks all of the wrinkles and creases out of the fabric.

When the fabric has become thoroughly dry it is then ready to be doped on. This is done by thinning the dope with a dope reducer to a 50/50 mix, and then applying it by brush to the fabric, being very careful to brush out all air pockets



A Lockheed Orion that has been refinished.

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1. They have greatly improved working conditions for the men, thereby speeding up work, protecting health, increasing employee goodwill.
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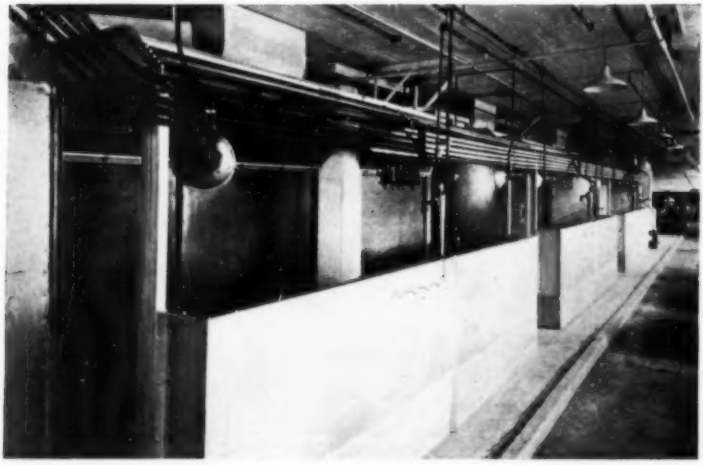
formed under the fabric. When this coat has set for half an hour, brush on a full-bodied coat of clear nitrate dope. This coat should dry for one-half hour. (I am assuming that all painting and doping will be done under favorable conditions. By this I mean that all operations will be performed in a well ventilated dope room, with the temperature from 70° to 80° F., and the humidity properly taken care of.)

The first full-bodied coat of dope is then dry-sanded with No. 120 Cutrite sandpaper. Upon the completion of this sanding operation the balloon tapes are ready to be doped on. I mention balloon tape in preference to other tapes, due to the fact that I recommend using balloon cloth for covering the plywood surfaces. The sizes of tape most commonly used for this type of job are 1½ to 2-in. wide. This tape is then doped on the wings over all joints, seams and edges on the fabric covering. Three full-bodied coats of clear dope are then applied at ½-hour intervals. On the completion of this operation, you give the job a fast sanding with No. 120 Cutrite and then proceed with the finish as explained for finishing plastic surfaces.

Fluorescent Lighting System

A new fluorescent lighting system to provide more light, in a more modern form, at lower cost, and known as the Benjamin "Lite-Line" System, has just been announced by the Benjamin Electric Mfg. Co., Des Plaines, Ill. In announcing the new system, the company states, "The new Benjamin RLM 'Lite-Line' System represents a further step in the development of continuous line fluorescent lighting, a development pioneered by this company several years ago. Through the use of this system, unbroken lines of light, row on row across the entire ceiling, provide higher levels of illumination for both plant and office in a more efficient and practical manner."



This picture shows a complete spray finishing installation in an automobile plant wherein automobile fenders are sprayed in front of a water-curtain spray booth. Note, also the complete paint-circulating system, with regulators. Photo, courtesy of the Binks Mfg. Co.

Wood Stains and Fillers

BY R. N. FILKINS

SANDING in the white, which is often slighted in some furniture factories, is very important. A few extra minutes spent in preparing the wood surface will ultimately save many dollars in the finishing room. *A good finish will be only as smooth as the wood surface under it.* All wood surfaces should be sanded smoothly with a belt sander and then by hand.*

All woods with open grain, such as walnut, oak, mahogany and ash, require filling. In some cases this will be done first, but usually it is left until after the staining operation.

If a water stain† is to be used, the wood should first be sponged and then sanded again, thus reducing to a minimum any raising of the grain fibers after staining. Warm water should be used, as it does a better job of raising wood fibers.

Before staining, the sanded wood surfaces should be thoroughly brushed to free them of all wood dust that might be embedded in any pores of the wood. Some machine sanding operations tend to force this wood dust into the pores and fill them. Then, if it is not brushed away or blown out, the stain covers it and prevents the filler from being worked into the wood pores. This also applies to hand sanding which may follow machine sanding. In most cases this dust can be removed by using a strong air duster.

Apply Stain Uniformly; Let Dry; Wash Coat

Water stain, which is commonly used, should be brushed on evenly (or applied uniformly if it is put on by spraying or flow-coating). Care should be used to avoid going over the work more than once. Do not leave any laps, as these will show up later. End grain is difficult to stain, as the stain penetrates end grain quickly. This can be avoided by first going over the end grain with a wet cloth. Then, when you proceed to stain the surface, you will get a uniform color.

Water stains penetrate deeply into the wood, they are fast to light, and do not fade. Their disadvantages are their tendency to raise the grain or surface fibers of the wood and the longer drying time required. This tendency of water stains to raise the grain of wood can be reduced to some extent by adding 2-oz. of ethylene glycol to each quart of prepared water stain.

*A portable sander, with reciprocating motion, can be used effectively on flat and gently curved surfaces; it is much more rapid than hand sanding. —EDITOR.

†Different finishers have varied preferences as to materials. When asked to include something in his article about modern non-grain-raising stains, the author wrote:

"In some cases, depending upon the grade of furniture to be finished, non-grain-raising stains can be used. This type of stain should be sprayed on, due to the rapid evaporation of solvents that are used in these stains . . . In most cases these stains are used to an advantage where filling is not necessary . . ."—EDITOR.

After the stain has dried for at least 24 hours it should be sized with a wash coat of shellac. This will allow all wood fibers that have raised to be sanded down smoothly. The shellac should be sprayed on evenly, using one part of 4-lb. cut shellac to six parts of alcohol.

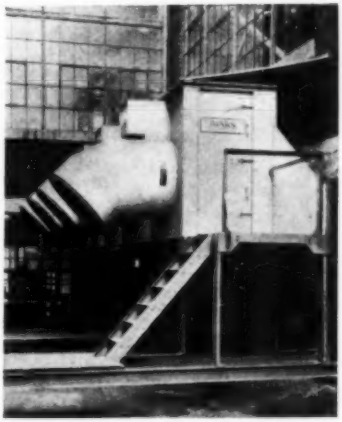
Measure and Mix Your Filler Carefully

Filling comes next. This is one of the most important operations in the finishing department. As in building a home, you must prepare a proper foundation on which to build your finish. The filler should be of good quality. It should be weighed before thinning or mixing, using about 12-lbs. of filler to the gallon of solvent. Never thin filler by guesswork. Mix only enough to complete the job. The next batch can be made by using the same amounts as the first. Never allow filler to stand overnight for use the next day, as it may not dry properly after being applied.

The filler may need thinning now and then, due to evaporation of its solvents. If so, thin it and keep it about the consistency of varnish. Filler that is too heavy will not fill your work properly. Never add any oils or japan drier to your filler; you must understand that this has already been done by the manufacturer. If your filler has a tendency to dry out in the container in which it was shipped, after part of it has been used, scrape all excess filler down from the insides of the can and pat it down with the remainder to form a level surface in the can. Cut some wax paper or oil paper that will fit the inside of the can and press it down upon the remaining filler and close the cover tightly. This is easy to do and it usually prevents the remaining filler from becoming dry in container.

When applying filler to the wood, always keep it well stirred and brush it thoroughly into the pores of your wood surface. Brush crosswise of the grain and then straight or parallel with the grain. Do not wipe it too soon nor allow it to get too dry before wiping. When it begins to look dull and is still wet on the underside, wipe off the excess filler with jute, hemp or burlap. This should be done in circular motions, wiping the filler well into the pores. Clean up with the grain, using soft cloths and being careful to avoid pulling any filler from the pores.

All filler work should be allowed to air dry at least 24 hours in a well ventilated room, with the relative humidity at about 45% before any finish is applied. Your work is then ready to take any finish that you may be using.



Here you see a large down-draft water-wash exhaust outlet assembly, showing just how provision has been made for a quick easy inspection of the fan blades and motors of the exhaust unit. Photo, courtesy Binks Manufacturing Company.

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Efficient Cleaning for B

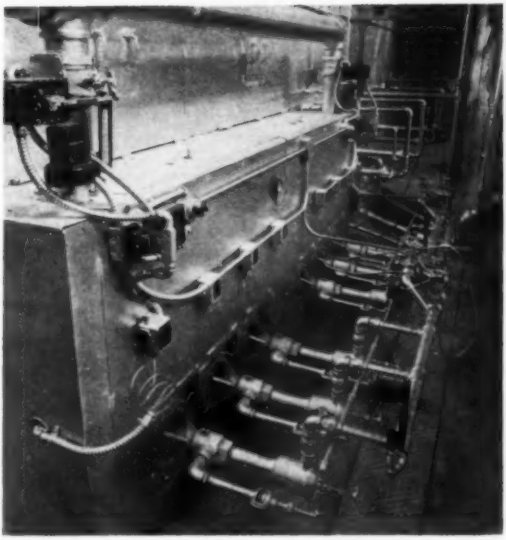
BY G. RUSSELL HERSAM
Technical Staff, Oakite Products, Inc.

THE possibility of making substantial reductions in metal-finishing costs by way of improved cleaning practice is frequently overlooked in the efforts of many concerns to establish efficient and economical finishing methods. When considering the metal-finishing picture in its entirety, investigation has often revealed that cleaning costs are actually too low. In numerous cases a slight increase in cleaning cost, as a result of adopting better equipment and materials, can be the source of greater compensating economies elsewhere in the finishing procedure. And further, it should be recognized that improved cleaning often augments a product's sales appeal by contributing to a better quality finish in terms of both appearance and durability.

Initial low cost for cleaning materials and equipment is no insurance of low over-all finishing costs. Actually, more often than not, initial costs and long-run over-all costs have an inverse relationship. For the achievement of high quality in finished products it is necessary to employ materials, equipment and methods of equally high

Carefully designed automatic equipment facilitates the handling of all work and helps to assure consistent results in production. The efficiency of spray cleaning depends on adequate solution volume and pressure, as well as on the correct selection of your metal cleaning solution. Photograph used through courtesy of the Soule Steel Company.

Better Metal Finishing



View of gas immersion burners used for heating the cleaning solution and rinse tanks in a typical installation of modern equipment. Photo, courtesy of the Soule Steel Co.

quality. So let it be thoroughly understood that "cheapness" in cleaning methods gives the same adverse result as would be the case if cheap lacquers, paints or enamels were used.

The validity of the foregoing statements has been demonstrated in many finishing departments. It can be demonstrated in any plant provided—and this provision is important—the immediately apparent costs incurred through the institution of new methods are relegated temporarily to a position of incidental importance. Once the most practical and efficient cleaning setup possible has been adopted, steps may then be taken to provide for direct economies within the cleaning cycle itself.

The necessity of cleaning a metal article before the application of a coat of finishing material is widely recognized. Inadequate cleaning has but one result—poor adherence of the coating. Finishers know that any slight blistering, cracking or flaking of the finish means rejection by the inspection department. And even when cleaning is sufficient to provide a finish of passable adherence, it may not be sufficient to give a coating of uniform appearance—thus spotty, specked and streaked finishes account for additional rejected work. Cleaning must be thorough if these finishing difficulties are to be avoided. Grease and oil must be removed from seams, spot welds, crevices and other shielded areas.

This is of particular importance when baking is a subsequent operation, as heat drives out any entrapped oil which, in turn, spoils the finish.

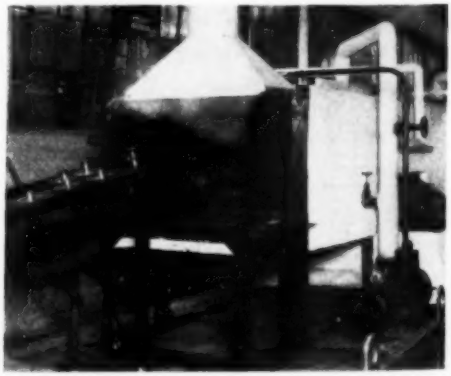
A high quantity of rejected work, regardless of the type of flaw causing rejection, interrupts finishing production, adding unnecessary expense to the job. With competition as keen as it is today in metal finishing, a high percentage of rejects can not be tolerated. The finishing department that takes no chances with inefficient out-moded cleaning methods, and is always open-minded toward the improvements modern research is constantly making available, is in a far better position from a competitive viewpoint.

Choice of Cleaning Method; Solvents; Cleaning Compounds

Choice of cleaning method depends on a number of factors that vary widely from one plant to the next; the principal ones concern the size and shape of the metal product, the foreign matter's resistance toward removal, and the plant production requirements. There are several different cleaning techniques commonly finding application for the cleaning of metal articles prior to painting, lacquering or enameling. This article will discuss, in particular, an up-to-date method employing specially-compounded acid-type cleaners, but before proceeding to this major topic, a review of other common methods will be made.

Solvents, such as naphtha, lacquer thinner, gasoline, etc., have long been used by finishers for metal cleaning. Today, except in the smaller shops, this cleaning method has been almost entirely displaced by more modern methods. In changing to other methods, primarily for the purpose of meeting the demands of present-day production schedules, plants have not only found greater cleaning efficiency and economy but also have eliminated the fire hazard of these inflammable solvent materials.

Methods using alkaline cleaning compounds are probably the most widely used in connection with metal finishing. Depending largely upon production requirements, these alkaline materials are employed in either still tanks or in mechanical washing machines. The latter, being completely conveyor-



Metal washing machines, properly operated with modern cleaning compounds, enable manufacturers to keep pace with modern production schedules. With careful attention to maintenance, this type of equipment gives long efficient service. Photo courtesy Oakite Products.

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ized, are more suited to straight-line high production requirements. Real cleaning efficiency, adaptability to the needs of practically all finishing departments, complete lack of fire hazard, and low cost are the primary advantages of alkaline cleaning methods. Since these methods are the ones predominately used throughout the finishing industry it is probably well to give a bit of additional space to certain aspects of this subject. In particular, there are several common fallacies regarding these methods which should be clarified once and for all.

Method and Materials Must Suit Product and Plant

In the first place, a careful analysis of the problem confronting each individual plant is positively required before alkaline cleaning methods can be intelligently applied. It is sometimes difficult for those who picture metal cleaning only in terms of their own personal plant problem to appreciate the fact that considerable preliminary work is required right on the job before a satisfactory approach to the problem's solution can be made.

Many individuals seem to feel that cleaning material and equipment manufacturers should, from their experience, be able, off-hand, to make specific recommendations after only superficially acquainting themselves with the problem, and then guarantee results. It just can not be done. And it must be emphasized that each individual plant has an individually different problem, despite the fact that one, two, three or four other plants have what, on the surface, appears to be the same job.

So the fact remains that the achievement of improved product quality, and the real finishing economies mentioned early in the article, depends on the opportunity to make a careful study of the problem itself and of operations occurring both before and after cleaning. Then, based upon data so obtained, the cleaning engineer can make recommendations not only as to cleaning procedure but also for certain changes in preceding and subsequent operations pertinent to cleaning—changes which, without interfering with finishing procedure, act to simplify the cleaning problem.

Another thing that some concerns ignore and which accounts for their inability to secure best possible results, concerns the need of altering cleaning practice when certain changes in the finishing production set-up are made. Too often a plant institutes new finishing methods, changes a product's design with resultant changes in operations before cleaning, changes its source of metal supply, or makes any one of numerous other possible changes, without considering the cleaning procedure. Such failure to adapt cleaning procedure to these changes accounts frequently for a falling off of cleaning efficiency, an increase in cleaning cost, and a general depreciation of all factors that depend on efficient cleaning. Actually the cleaning problem has changed and it is only natural to expect that certain adaptions are required.

Look into Possible Improvements in Methods and Equipment

There are many ways in which improvements can be made in a plant's cleaning department. A plant survey may reveal, in instances where alkaline still tank methods are in use, that a simple provision for solution agitation will appreciably cut cleaning time. Or

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perhaps the use of thermostatic control instruments on cleaning tanks or metal washing machines, will, by automatically maintaining the solution temperature at its most effective level, insure uniformity in cleaning results and reduce costs by way of lower steam or gas bills.

On the other hand, more effective handling of the metal ware may result from the installation of overhead mono-rail conveyors or chain conveyors, etc. Too, it may be that steps taken to prevent operators from handling cleaned work will reduce rejects which unknowingly have been the result of perspiration etches and rusting that showed up through the finish. Another possible economy might be brought about by measures taken to prolong cleaning solution life — perhaps by means of an overflow dam for floating off accumulated surface oil, or by a 2-tank cleaning set-up.

Lack of adequate equipment facilities is all too common. The expense of new equipment to replace inefficient, worn-out equipment is quickly paid off as a result of improved cleaning. Sometimes the renovation of existing equipment provides the most practical and expedient answer to better cleaning efficiency. The restoration of washing-machine nozzle pressure, the cleaning out and descaling of the machine, the replacement of old nozzles with new, the alteration of nozzle direction, the provision for improved heating and rinsing facilities—all these and similar changes can frequently be the means of improving cleaning results. They are the sort of suggestions cleaning engineers make when permitted to thoroughly survey a plant's cleaning problem.

Although naphtha and similar solvents, have, to a great degree, been eliminated as cleaning agents prior to finishing, a different technique of solvent cleaning known as "vapor degreasing" often finds effective application. Chlorinated hydrocarbon solvents, such as trichlorethylene, are employed in specially-constructed degreaser units, some of which provide for solvent cleaning in the liquid as well as the vapor phase. This degreasing method, in a number of cases, provides good cleaning efficiency; in other instances particularly where insoluble solid matter is a contaminant or where the work is so shaped as to cause excessive solvent carry-out, a different cleaning method is required.

Also, in connection with solvents, many plants that have work which is contaminated with foreign matter particularly difficult to remove, find solvents of the water-emulsifying type indispensable. Such solvents are frequently used as a presoak treatment prior to final cleaning by tank or washing machine methods, and they provide a simple answer to many difficult cleaning problems.

Up to this point, this article has dealt briefly with methods which, although modern in the sense that constant improvements make them so, have nevertheless been utilized in fundamental principle for many years by the metal-finishing industry. From this point on, the discussion will concern a more recent technique—one which today is coming into its own right as an efficient, low-cost procedure for preparing metal articles for the application of various finishing materials.

Acid-Type Cleaning Compounds Kill Rust and Water Spotting

This new technique makes use of special acid-type cleaning compounds that possess properties en-

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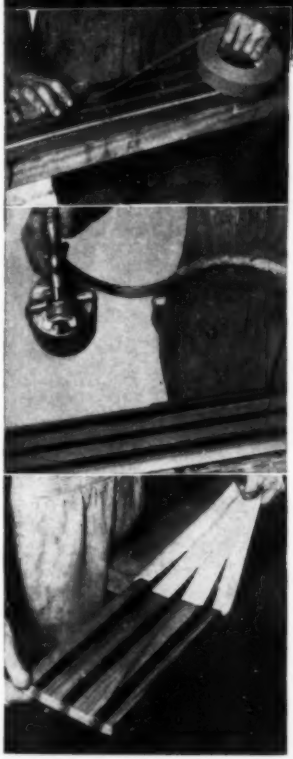

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abling not only the removal of oil and grease but light rust as well. The improvements they have made possible are sure to interest every progressive metal finisher. With these compounds a number of plants are now securing better cleaning results at considerably less cost than formerly. Rusting difficulties have disappeared and troublesome water-spotting has been eliminated.

In this latter respect it may be mentioned that in some cases the work may come from the drying compartment with a non-uniform appearing surface condition which is suggestive of water spotting. It is not, however, a condition to become alarmed about for it is not true water-spotting and does not in any way interfere with the uniformity, gloss or sheen of the finish coating.

Another condition not formerly experienced is apt to be the presence of a light dust-like film on the metal surfaces. But again, this also is not a condition detrimental to the final finish; in fact, it appears to contribute toward better finish adhesion.

Among the several merits that have been noted in installations employing these new compounds, the following may be listed as those which probably are most prevalent and important:

1) Rust spotting is eliminated.

2) Water-spotting is eliminated.

3) Hand-wiping and tack-ragging are either entirely or largely eliminated.

4) Better finish adhesion is secured because of a better surface bond condition.

5) Better coverage and adhesion around seams, rivets, spot welds, etc., are provided.

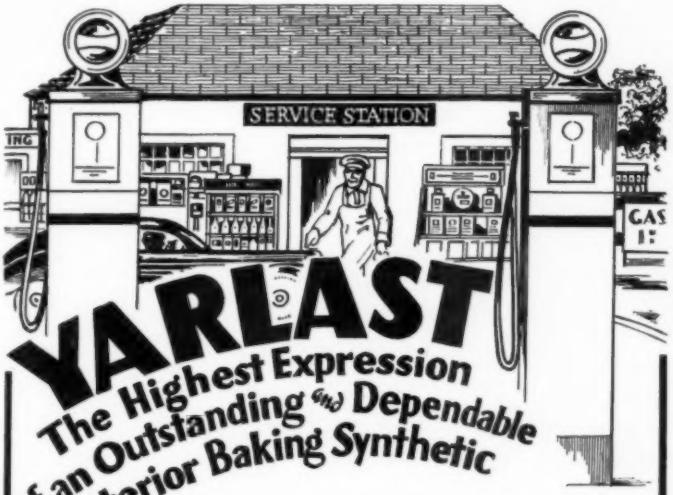
6) Lower costs are realized because of: a) Low initial cleaning solution cost and less frequent dumping of solutions; b) lower heating costs, resulting from operating cleaner tanks without direct heating, and c) fewer rejects, fewer production interruptions, etc.

Fully applicable in plants having the highest of production requirements, these special acid-type cleaners are used successfully in many mechanical washing machine installations. Large machines having two cleaner tanks, a rinse tank and drying compartment are preferably employed, although satisfactory results are being secured in the smaller 2-tank machines. In general, operations are as follows:

Solutions in Tanks 1, 2 and 3

In the first tank a solution of the cleaner is prepared at a concentration ranging from 1% to 2% by volume. The second tank is prepared to contain a solution of ½% by volume concentration, while in the third or rinse tank, just enough compound is added to give a solution only slightly acidic. After the necessary additions have been made to the water in these tanks the pumps are put in operation so as to completely mix the solutions and insure uniform concentrations in each tank. Then the third tank is heated to 160° F., the temperature at which it is maintained throughout the operation. No steps are taken to heat the solutions in tanks No. 1 and No. 2, for in the course of the machine's operation the heat carried out of tank No. 3 will raise the temperature of these solutions to approximately 100° F., and 120° F., respectively. Additional heat in the first two tanks is not required or desirable.

Before any attempt is made to use this method it is essential that the washing machines be thoroughly cleaned. If machines have been



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previously used with alkaline cleaning solutions, a scale condition within the machine almost invariably exists and, if not removed, the new cleaning solutions will act to loosen the scale deposits with a resultant loss in cleaning effectiveness. Sometimes the rinse tanks and rinse spray lines are full of rust, scale, grease and dirt, and are the cause of streaked, rusty work.

Control of Solution Strength; Rinsing; Drying

In the operation of this new cleaning method, control is a factor of utmost importance. Initial results quickly indicate the most desirable concentration range for each tank and periodic tests must be made to determine concentration drops so that additional compound may be added when required. Also, it has been found advisable to provide the first solution tank with an overflow dam or some similar device for floating off the oil that accumulates on the solution surface. Adequate provisions for drying are highly desirable too, particularly where the work is of light gauge metal. Where possible, it is suggested that steps be taken to remove excess water from the work with an air blast before it goes into the drying oven.

In addition to finding application in the manner described in the preceding paragraphs, these specially-compounded cleaners have other applications in the finishing industry. First, they may be used in the rinse of metal-washing machines which employ alkaline solutions in their cleaning tanks. The special acid-type compound is added to the rinse water in sufficient quantity to give a concentration of ½ of 1% for the purpose of curtailing the development of rust and water spots. Numerous plants have adopted this practice and have found it to be well worth while.

A second additional application, and incidentally one of the first found for these products, concerns their use by hand cleaning methods in preparing for painting large articles which, because of size, shape and small quantity, are not readily adaptable to other methods. Hand wiping of the articles, using cloths or steel wool saturated with a 20 to 50% solution, yields clean rust-free metal surfaces. Dry wiping with clean cloths usually follows. Improved finish adhesion is the outstanding advantage of this cleaning method.

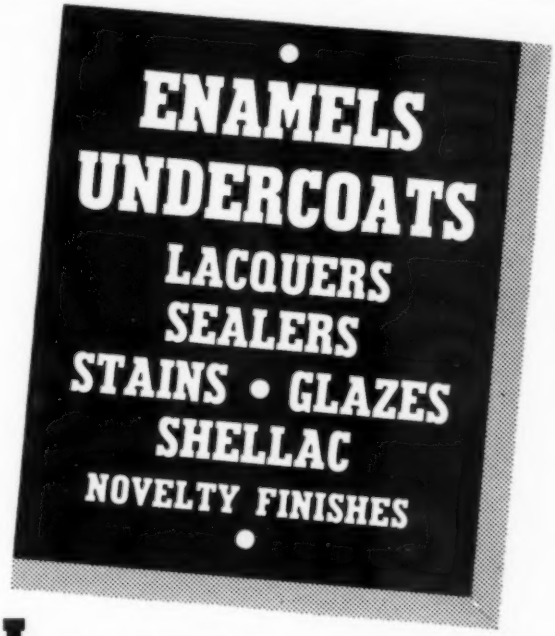
It should be made clear that these methods do not have universal application; they do not provide a cure-all for every metal-cleaning problem. But they do, nevertheless, have a definite place in the metal-finishing picture and for that reason merit investigation.

Jim Gets Advice on Selling

FISHERMEN and salesmen are pretty much alike — both are looking for "a rise". If the fisherman knows his fishing, he is pretty likely to land. I expect the same can be claimed for the salesman — if he knows his selling!

However, a poor fisherman may catch some fish, whereas a weak-kneed salesman — well, there just isn't much luck, if any, in expert selling. Now is there? No sir, you got to know your stuff to even get a "rise"; and excuse the pun, "the raise".

I knew a fellow once, and probably one of the best fishermen in the state of Michigan. He sure could land 'em and I mean big ones. He'd cast and I'd cast and damme if he



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couldn't pull 'em out where my fly would remain unnoticed. I asked him: "Bill, how come?" "Oh, I dunno," he replied. "I just set er out where I believe there's a good one waiting and generally there is!"

Some time later he decided he could make better money selling industrial paint. What he knew about fishing he must have applied to selling production paint because he landed time and again—and always big ones too! He's still doing it. But, how?

So, I wrote him a few weeks ago. Here's his reply. It intrigued me. It may interest you.

"Dear old Jim: Now wouldn't you like to know! After all, fellow, aren't you supposed to be a competitor of mine, or have you quit the paint business and returned to your first love ————————? Anyway, for old time and fishing sake, here's my tip to you, Jim. You got what it takes but do you know how to use it? Your fly (paint) is as good as mine; so's your rod and your darned old leaky waders. But I've seen you fish, Jim, and your lack of technique—gosh it stinks!

"I think you talk too much and say too little. You swear beautifully, but at the wrong time (remember the hook in the seat of your pants). You sleep too late and quit too soon. Better take a couple hundred C-1 vitamins. You fish in pools that are easy to get to, but sadly lacking in what you're after, so you're impatient, and a little peevish when the other fellow 'hooks' and you get hooked.

"Well, you asked for it, so I'll continue. The big difference between you and me, is that I know what I'm doing and why I'm doing it. Do you? If not, better find out and you'll catch more fish and sell

more paint. That will cost you exactly one hundred bucks, and worth it. Please remit.

"By the way, I hope we can sojourn northward this season. I've got a honey new fly. Call it the 'buzzerwitz' and I am nuts to give it a try! Good luck to you, fellow, and always remember that if I can't do you some good I'll never do you any harm.—Yours, Bill."

Well, maybe you're right, Bill. Anyway I'll try a new tack, for you sure know your fishing and it's worth a try. And, oh yes, I'll match you the $100, double or nothing when we fry the first catch this spring.—"SMILING JIM."

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How to apply radiant heat lamps to industrial drying, baking, and heating tasks is revealed in a new 12-page illustrated booklet published by the Westinghouse Lamp Division, Bloomfield, N. J.

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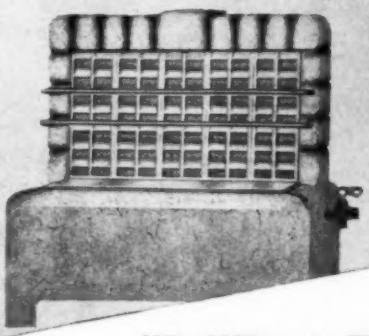

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BY F. HAGAN
Foreman Finisher

IN OUR establishment, unfinished casket shells come to the paint room from the sheet-metal department, where they have been given an oil coating to prevent the surfaces from rusting. They are piled four high on low flat trucks and are kept in stock until orders for them are issued by the office.

When the shells are ordered out from stock, each shell is given a serial number for identification. These shells are then moved to the cleaning racks where the outsides are scrubbed with hand mops dipped in cleaning fluid. Before the applied cleaner evaporates, the shells are wiped clean and dry with laundered cotton rags.

Neutralize Soldering Acid

Casket shells that are to be sprayed with any material containing either gold or bronze powders, are washed with a soda solution which is made up in the proportion of one tablespoonful of soda to one quart of water. This is done to kill all traces of soldering acid that may remain on shells coming from the metal assembly department. If this acid is not neturalized, it will cause gold or bronze finishes to turn green, thereby spoiling the finish.

Next the surfaces are hand sanded with No. 150 sandpaper and racked up for inspection. Inspectors look them over critically for any defect. This inspection is quite important, as it prevents any casket shells from moving forward to the beginning of coating operations unless they are in perfect condition.

Putty Glazing; Drying; Sanding; Prime-Coating; Wet Sanding

The shells are delivered to the putty glazers who apply putty glaze to spots or seams that have been marked by the inspectors. This is a pyroxylin putty that dries hard in a force-drying room at 150° F. for one hour. Shells are removed from the drying room and, when cool, the surfaces are sanded with No. 150 sandpaper. This sanding calls for skillful feather-edging and smoothing out around and over the puttied spots.

Metal casket shells are then moved to the prime-coat spray booth where the mitered corners are first given a coat of primer; then the entire shell is prime-coated. After the prime coat has dried for two hours the surfaces are wet rubbed with No. 280 wet-or-dry sandpaper and water. Here the primer is rubbed to a very smooth surface and wiped clean with clean clear water.

Next we come to the color shading and lacquer spray booths. Before spraying begins, the shells are

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wiped with tack rags to remove all dust, lint or any other particles or smudges that might be on their surfaces. Each spray man finishes the shell complete while it is in his booth; that is, he does the color shading or blending and gives it the final lacquer coats.

Each spray booth is equipped with a turntable hoist operated with compressed air and controlled by a convenient pedal on the floor. This equipment is arranged to lift the entire casket shell and its truck to the proper height so that all shading and blending can be done while the operator is standing upright—which makes for faster and better work than can be done when the operator is stooped over or bending forward toward his work.

We have one specialty booth, and when some special finishes are called for, they are kept out of the regular line of production and directed to this booth. The specialty booth is equipped with three pressure tanks, three large spray guns, one quart-cup gun, and one shading gun.

The primer spray booth is equipped with one pressure tank and one gun. Each of the three shading and lacquer booths is provided with three pressure tanks, three large spray guns, one quart-cup gun, and one shading gun. All spraying is done at 65-lbs. air pressure. We use all high-speed guns with special heads and air caps for colors and clear lacquers, and we can produce about 150 different decorative finishes.

After the casket shells have been colored, shaded and lacquered they are placed in a drying room and force-dried at 150° F. for two hours. Upon leaving the drying room they are allowed to cool, their surfaces are rubbed down with No. 360 wet-or-dry sandpaper, and then re-rubbed with No. 400 wet-or-dry sandpaper. Then they are moved to the buffing booths where a compound is applied to the surfaces and a high gloss is buffed up with canton flannel buffs.

Painting the Insides

Casket shells are then moved to a cleaning booth where their inside surfaces are cleaned with a vacuum cleaner, after which they are painted on the bottom and inside. This paint is carefully sprayed to within 3-in. of the top edges of the shell. We have no trouble with overspray, as we do this work in a special booth in which the suction is arranged to draw the overspray up out of the shells. The operator holds his spray gun close to the work and gets along fine.

All copper and bronze shells are stenciled on the bottom to show the natural copper or bronze metal. The spot under the stencil is polished and given a coat of clear lacquer to prevent it from tarnishing. Next the casket shells move into the inspection room where they are inspected thoroughly. If okay, they are sent on to the trim department; if not, they are rejected. I am happy to say that we have very few rejections.

The drying rooms I have mentioned are steam heated with exhaust steam from the company's own power plant. We use radiators with fans behind them to drive the heat into the middle of the rooms. This assures adequate circulation of air, quick distribution of heat, and it is economical. Our drying rooms are equipped with thermostats set to keep the temperature at 150° F.

As for the arrangement of our department, casket shells come off the elevator from the sheet-metal

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for Highly ATTRACTIVE FINISHES

Quality Non-Royalty Clear Lacquer Sealer

If you want a sealer that will help enhance the final finish on your product; to help do a better selling job—here it is—at considerable savings! CLINCO affords you that better build for more depth of finish.

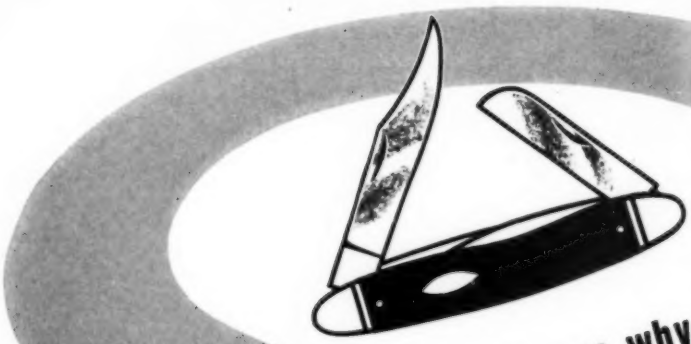
Capitalize on these economy factors:

This CLINCO Non-Royalty Sealer has a high solid content of more than 21%, and stands a reduction of 2 to 1. CLINCO Sealer can be sanded within 20 minutes after application.

Quality makers of Licensed Sealers and Shellac Sealers

The **CLINTON** *Co.*

1210 Elston Ave. Chicago



Your own jack-knife can tell you why

BULLS-EYE is better shellac

You *know* shellac is a good finish or undercoat for almost every product you turn out in your finishing room. You know it's quick-drying, transparent, and tough.

But how can you find out which is the *best* shellac? How can you be sure that the shellac you're using is the *quickest* drying, the *most* transparent, the *toughest?*

A Test You Can Try Yourself

Pour two different films of shellac over a clean dry piece of glass. For one of them use Bulls-Eye. Then see which dries *faster.* Press each film lightly with your finger. See how one continues soft and tacky, while the other becomes firm and dry.

Compare it for Clearness

When the films have dried, hold the glass up to the daylight. Notice that there's no gray cloud, no discoloring in the Bulls-Eye. It's as transparent, clear and smooth as the glass itself.

Scratch it with a Jack-knife

Just test the shellac for toughness this way: After the films have thoroughly dried, try to scratch them with a jack-knife. See how much better Bulls-Eye stands up under the same amount of pressure, how it really resists scratching. That's because Bulls-Eye is the toughest, most elastic finish made!

What Makes BULLS-EYE Better?

You need good raw materials to turn out a good final product. William Zinsser & Co., makers of Bulls-Eye Shellac, get the finest raw shellac available in India suitable for bleaching. Then, in their modern bleaching plant, they turn every trick of 20th Century science loose on it. To make it extra-tough and extra-clear, they bleach it so carefully and slowly that nothing but the color is eliminated. To make it quicker-drying, moisture is removed by *vacuum* which requires less heat than any other method. Finally, Bulls-Eye liquid Shellac is manufactured with Specially Denatured, *Formula No. 1* Alcohol, 190 Proof, obtainable only under government bond.

—That's why when you use Bulls-Eye, you're using the quickest-drying, the clearest, the toughest shellac you can buy. You always know what you're getting with Bulls-Eye...you're getting the *best!*

Costs a little more ...worth a lot more

WILLIAM ZINSSER & CO. **New York City • Chicago**

department and are stored in the center of the room. When shells are ordered into final production, orders are given to the man in charge of the washing and cleaning rack. After the cleaning operation is completed each casket shell proceeds from one operation to the other around the room, just inside of the windows where we have excellent natural light. When casket shells have completed their round of operations they are finished and ready to go out the door to the trim department. We have the system worked out so there is no back tracking at any time. Names of finishing materials used will be given on request.

New Wood Grain Booklet Offered Free

A new brochure describing an improved method of reproducing wood grains on both metal and wood surfaces has just been issued by Ault & Wiborg Corp., 75 Varick St., New York, N. Y.

The brochure is enclosed in a special wood grain cover, which is printed in striped walnut on the outside and an amboyna burl pattern on the inside. The various applications of the new wood graining method are outlined, and there are illustrations of its use on automobile moldings, on metal furniture, and wall panels, and on the backs of wood brushes.

Manufacturers may obtain copies of the brochure by writing Ault & Wiborg.

Printed in full colors, 8½x11-in.

Improved Finish Drying Method Patented by New Wrinkle

New Wrinkle, Inc., Dayton, Ohio, has recently been issued two new United States Patents. One of these, No. 2236397, covers methods of drying finishes; the other, No. 2236398, pertains to apparatus required for drying finishes.

Methods of Drying Finishes

This invention relates to a method for drying coating compositions, and more particularly to the method of producing wrinkle finishes. However, it is equally adaptable for accelerating the drying of other types of coating compositions which dry to a hard, flexible film by oxidation, polymerization, evaporation of solvents or a combination of these actions.

Apparatus for Drying Finishes

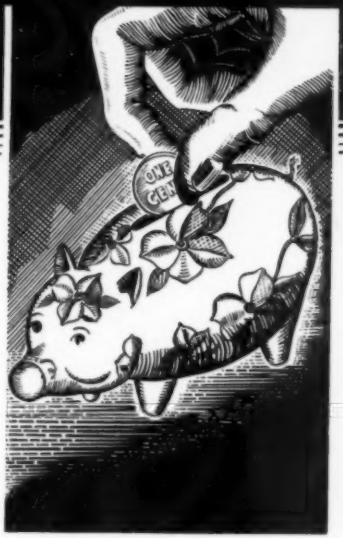
This invention relates primarily to a new type of machine for drying or baking coating films in the production of wrinkle finishes. However, it is equally as effective in the drying of all coating compositions which dry to a hard, flexible film by oxidization, polymerization, evaporation of solvents or a combination of these actions.

The advantages described in connection with the first patent, that of methods of drying finishes, are the direct result of the application of this patented apparatus which includes the use of an even distribution of heat and ultra-violet irradiation of the atmosphere in tunnel or rectangular type ovens.

These two U. S. patents have been assigned to New Wrinkle, Inc., Dayton, Ohio, by Folsom E. Drummond, inventor, also of Dayton.

Infra-Red Radiant Heat Bulletin Is Informative

A new illustrated bulletin (4 pages 8½x11), explaining simply and clearly certain facts about infra-red radiant heating for baking or curing finishing coats, has been issued by the Wabash Appliance Corp., 333 Carroll St., Brooklyn, N. Y. Write to the company on your business stationery, if you want a free copy—and please mention INDUSTRIAL FINISHING.



ECONOMY

A Recognized Quality

IN

RELIANCE

FINISHES

TUF-TEX RUBBING VARNISH *SPEDE-VAR*
DURATONE STAINS *SYNTHENOID ENAMELS*
LO-VIS-LAC LACQUERS
VENEER-ITE AND BONNIE WOOD

RELIANCE VARNISH COMPANY
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LOUISVILLE KENTUCKY U.S.A.

THE FINISH THA

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I. DU PONT DE NEMOURS & COMPANY (INC.), F ISHES

A GOT A BATH...

d bowed up all its spots!

OFTTIMES *little* things play a *big* part in a finishing process . . . can spell the difference between a *good* and a *bad* finish on a product. For example . . .

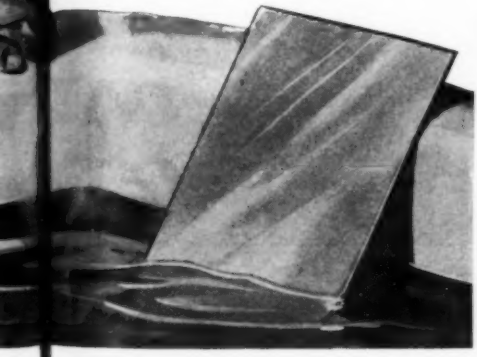
To prove the necessity of gloves in any painting operation, a Du Pont representative had several finishers in a manufacturer's plant deliberately place their fingers on a piece of clean, phosphate-treated metal. It was then primed and sanded. Then an enamel finish was baked on.

The Du Pont man took the sample to his hotel, soaked it in his bath tub all night. The next day's demonstration was a dramatic success. Finger prints stood out clearly. The men were greatly impressed. Gloves were a "must" from then on. Splotchy finishes were eliminated . . . and there was no more worry about bad finishes or dissatisfied customers.

Perhaps this was a *little* thing—but it did make a *big* difference! This case is typical of the reason why all our customers place complete confidence in Du Pont's deep, thorough understanding of finishing processes ...and why most of our customers regard Du Pont as their own paint department.

They know, too, that their problems are in the best possible hands . . . that Du Pont research chemists, laboratory technicians, production men, service engineers and field representatives are skilled specialists who combine "know-how" with the finest facilities for developing, making and applying better finishes.

They are glad they have turned to Du Pont. And they know that as finishing problems arise in the future, Du Pont will be ready and able to supply the right answer.



"New Frontiers Through Chemistry"

...yours for the asking!

▶ This interesting new book, prepared by Du Pont, describes many of chemical science's discoveries; the research, the testing, the inside story of many of chemistry's sensational triumphs. For your FREE copy, just write to: E. I. du Pont de Nemours & Co. (Inc.), Room 7154M, Du Pont Bldg., Wilmington, Delaware.

, FINISHES DIVISION, WILMINGTON, DEL. DU PONT

Speed—Speed—MORE SPEED!

THAT'S the Keynote Nowadays!

Hilo Vitra Carlite is designed to speed your finishing. It bakes in 5 minutes at 350° F. if you so desire. Or in 20 minutes at 300° F. The hard, tough film has exceptional adhesion. The glossy porcelain like appearance and the brilliant colors will last with age and under sustained heat.

HILO *SEND FOR DESCRIPTIVE BULLETIN.*

HILO VARNISH CORP.

47-60 Stewart Avenue Brooklyn, N. Y.

Hilo Varnish Corp.
47-60 Stewart Ave., Brooklyn, N. Y.

YES! You may send me Bulletin No. 21 on Hilo Vitra Carlite. Also send me a sample in White ..... Black ..... Color .....

Firm Name ..... **Your Name** .....

Address .....

"Resist-All" Finish

As announced by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago, Ill., "Resist-All" is an entirely new product (a finish for furniture, radio cabinets, pianos, etc.) which derives its name from special adaptability to withstand or "resist all" ordinary harmful elements. It is neither a varnish nor a lacquer, yet it embodies all of the advantages of both and apparently eliminates the disadvantages of both. It has no cotton or lacquer content, but dries equally as fast as any lacquer and is equally as tough, but much more flexible and much heavier in body. The solid content is practically the equivalent of varnish, but it has no tendency toward brittleness and is print free as well as exceedingly resistant to hot and cold checking.

According to Mr. Dolan, "Resist-All" is highly resistant to all types of products that are detrimental to any ordinary lacquer. For example, it will withstand indefinitely the direct application of straight alcohol, liquors, fruit juices, boiling water, dilute acids, etc. Because of its unusual construction this new finish produces an exceptional heavy film, a single coat being comparable to two coats of ordinary lacquer. It is flexible and plastic, yet absolutely printproof. There is practically no shrinkage.

Bulletin Boards

Streamlined bulletin boards that are as modern as the new front office, are announced by The Boyer-Campbell Co., 6540 Antoine St., Detroit, Mich.

While the B & C bulletin board is made in single units they can be mounted in series and used for plant notices, production schedules, special exhibits, etc., in addition to safety purposes, and titled accordingly.

The inner panel or mounting board is removable and the various displays, notices and exhibits can be worked up or developed and viewed in the central office, just as they are to appear before they are put up in the bulletin boards for general inspection.

New . . .

MATERIALS SUPPLIES EQUIPMENT

The B & C bulletin board is 30-in. wide, 37-in. high, and 1¾-in. deep. The metal part of the case is of 20-gauge steel and has a modern crackle green enamel finish. The door, 28¼x 35½-in., is fitted with double-strength glass protected by channel rubber along all edges; it is suspended by three hinges and is fitted with hasp and staple.

Protective Mask

Production of its new No. 602 Healthguard Abrasive Mask is announced by Chicago Eye Shield Co., designer and manufacturer. Recently tested and approved by the U. S. Bureau of Mines, the new mask is said to be especially attractive to those industries in which harmful dusts of intense or lesser density are encountered during periods of extensive exposure, particularly in sandblasting operations. A especial advantage is claimed in that low operating pressures of two to 9-lbs. per square inch result in full efficiency and low cost operation.

The mask consists of a soft moulded rubber facepiece with large replaceable laminated glass lenses, headharness and corrugated tube, filter unit with replaceable cartridge, air-regulating valve, pressure-relief valve, quick-acting detachable coupling and approved hose which connects it to the

air supply. In use, the mask is completely covered by the new pure gum rubber Duratex hood for protection of the head, neck and shoulders. The hood lens holder is fitted with an inner laminated glass window and an outer screen of course metal.

In operation, the air under regulated pressure passes through the filter cartridge where foreign particles and odors are removed. Control valve regulates the flow of clean air to the facepiece, excessive pressure is said to be entirely eliminated by a fully automatic relief valve.

Further details on the new No. 602 Abrasive Mask are obtainable from Chicago Eye Shield Co., Dept. 45, 2362 Warren Blvd., Chicago, Ill.

Handles Drums Safely

Barrel-Lift is the name of a new barrel or drum-handling unit which lifts, moves, rotates and tilts most types of drums or barrels. Its structural and tubular steel frame combines strength with light weight for long, easy operation.

To lift a drum standing on its end on the floor, the lift is brought into position and the drum is cinched in the lift saddle. This saddle is connected by links to the ends of a U-shaped handle which is brought down to raise the drum from the floor. In this position the lift rolls on its wheels, the handle being used for steering. Farthest movement of the handle places the drum at its highest position, where it can be rotated and tilted to dispense contents. When drum is released after tilting, it returns to upright position to prevent dripping of contents.

The lift accommodates barrels or drums of approximately 55-gallon capacity. Two types are available—drum-type for parallel-side drums, and barrel-type for curved barrels. Both types are equipped with automatic safety locks. Width between wheel centers, 30-in.; maximum clearance from floor to bottom of drum in vertical position, 11½-in.; in horizontal position for pouring, 18-in. A product of Falstrom Co., Passaic, N. J.

Operator is lifting or lowering the drum.

Repairs Finishes in Any Color

A newly developed material and process for repairing damaged places on new finishes—particularly those difficult to repair, such as the clear finishes over bleached woods, glazed blond finishes, grained finishes, highlighted effects, etc.—is announced by Finishine Laboratories, Syracuse, N. Y. It is called the "Lubrisol-Pad-O-Paque Process".

This new quick process of making attractive and permanent repairs involves the use of a material called Lubrisol (supplemented by Lubri-solvent). This is a quick-drying material which can be applied and built up in a most remarkably effective manner by a simple easy process of padding, which is explained in the company's directions.

The Pad-O-Paque part of the process consists of 16 different shades of prima vera, walnut, maple, mahogany and blond, together with black and white, from which all basic shades and colors or combinations of colors

ADHESIVE TAPES *and* HOME APPLIANCES

Ewing Galloway, N. Y.

The Industrial Tape Corporation line of pressure sensitive paper, cloth and cellophane adhesive tapes is recognized as tops in quality. Used extensively in this industry for protection of highly polished bright work and finishes. Holds movable parts in place such as doors and plates when shipping stoves, ranges and other home appliances.

This sturdy line of super adhesive, flexible adhesive tapes is proving an economical, labor-saving factor in hundreds of ways in many leading industries.

Samples on request

Our laboratory offers full cooperation to help solve any special tape problem. No obligation.

INDUSTRIAL TAPE CORPORATION

NEW BRUNSWICK, N. J.

can be obtained for padding out the new modern finishes to an exact match of colors.

This process can be used to permanently repair finishes of lacquer, varnish or synthetic, matching the surrounding finish perfectly in color, depth and surface sheen.

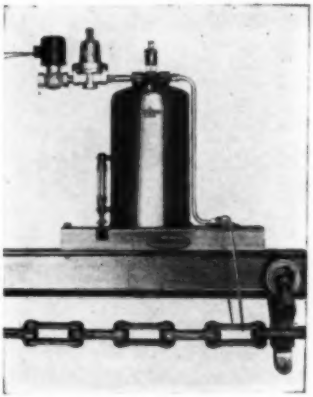
Lubricates Oven Conveyors

To solve the problem of lubricating the chain links of conveyors passing through ovens, kilns and other hot zones, J. N. Fauver Co., Inc., 49 West Hancock Ave., Detroit, Mich., offers an automatic conveyor chain lubricator. In a typical case, the chain of a 250-ft. conveyor, designed to travel at the rate of 2-ft. per minute, through a firing kiln, frequently "froze" when passing over the sprockets, resulting in changing speed of chain travel and uneven firing of the ceramic products passing through the kiln.

The Fauver lubricator consists of a 2-gal. capacity tank hooked up with the plant air line, with an air regulator set at 80-lbs. pressure to insure effective control and operation of the outfit. The air, passing through the lubricator, picks up a predetermined and adjustable amount of lubricant and delivers it, in the form of an oil fog, through ⅜-in. O. D. copper lines to both sides of the chain links.

Acheson-Colloidal graphite is used as the lubricating agent and the mixture and its application are so controlled as to insure each chain pin being lubricated for its entire length every trip and still leave no excess to cause drip. The spray of lubricant is easily adjusted to conform with kiln temperature and with chain speed. The action is entirely automatic. An electric solenoid valve on the lubricator inlet line is wired to the starting switches of the chain drive motors so that the lubricator starts operating the minute the conveyor starts and operates continuously and automatically.

In addition to allowing uniform conveyor speed, hence more even baking or curing, the application of the lubricator is claimed to effect economies in lubricant, a reduction in maintenance costs and an important saving in "down time" due to conveyor stoppage resulting from improper lubrication.



View of Fauver conveyor chain lubricator.

Blackening Process for Zinc

The Enthone Co., 442 Elm St., New Haven, Conn., announces the development of an immersion process for the blackening of zinc and its alloys. The process called, "Ebonol Z", consists in immersing the zinc or zinc alloy in a 1-lb. per gallon (of water) solution of Ebonol Z salts, at a temperature from 150° to 212° F. An adherent, jet black finish is formed in from one to five minutes.

The work is cleaned in alkaline cleaners or degreased with solvents and acid-dipped similarly to preparing work for plating, before being treated in the blackening solution. According to the manufacturer, 1-lb. of salts will blacken over 150-sq. ft. of zinc surface. The bath is not critical and requires little control.

It is reported that the Ebonol Z

Ever Ask ... What They Want in a Finish?

The men who have to go out and *sell*, know what people look for and ask for in a finish. If you pop that question to your own sales force, you'll probably discover that what counts most with them—because it counts most with the customers—is *appearance, resistance to rough handling*, and *long wear*.

The finish that gives you all three qualities, that makes your product look better, wear better and sell faster—is *shellac*.

What makes shellac a better finish?

Whatever your product, tables or toys, chairs or showcases, sporting goods or novelties, you'll find that shellac is the easiest, most economical and most effective finish you can use. Here's why:

★ Shellac dries quickly

★ Shellac is easy to handle

★ Shellac is clear and transparent, doesn't discolor wood.

★ Shellac adds beauty to the product by giving it a smooth, satiny surface

★ Shellac resists wear like a coat of armor

★ Shellac stays good-looking *longer*

★ Shellac is an excellent undercoat for varnish and lacquer

A shellac finish helps you sell your product because it gives that product an *extra* something—extra beauty, extra protection...Discover what a saving in time and expense, what an advantage in looks and wear shellac can give you!

For specific information about your particular finishing problem, write to:

SHELLAC INFORMATION BUREAU
65 Pine Street • New York City

solution can be used for producing a black coating on stainless steel, nickel silver, nickel, and noble metals, by making a couple with these metals and a piece of zinc. This can be done by using a zinc basket or by fastening a sheet of zinc to the rack or basket in which the metals are to be blackened. The process is stated to be particularly valuable for nameplate finishing, where recesses are to be blackened, and for blackening the etchings on rules, squares, tools, etc.

It can be used for blackening zinc-plated or hot-galvanized surfaces, as well as for solid zinc or its alloys. The blackening process is stated to be particularly timely for armament purposes, as it allows the blackening of zinc and other metal surfaces to reduce or eliminate glare and, in addition, the thinness of the coating obviates any possible difficulties from a dimension tolerance standpoint. Unlike plated or enameled coatings, the Ebonol Z coating does not change the thickness of the piece more than few hundred thousandths of an inch, thus close dimensions can be maintained.

Waterproof Fabric

For concerns interested in a strong waterproof fabric that is resistant to acids and heat up to 300° F., the Endurette Corp. of America, Cliffwood, N. J., offers its newly developed Endurette Nylon.

According to the company's statement, Endurette Nylon is designed to be used in a great many important fields—for example, shower curtains, umbrellas, chemical and household aprons, army suits and uniforms, hospital uses, lamp shades, dress shields, book covers, garment bags, traveling kits, photo frames, baby bibs and pants, cosmetic bags, hunting outfits, tobacco pouches, etc. In the industrial field, Endurette Nylon will be used for insulation fabrics, and other uses.

Preliminary scientific tests performed upon Endurette Nylon indicate that it is absolutely waterproof, proof against grease, oil, stains, mildew, and moths; it is resistant to acids and heatproof to 300° F.; it will not stick, harden or become lumpy; it may be washed, dry cleaned, laundered, and even ironed through a cloth; it will not shrink or stretch, is extremely flexible, and retains its beautiful draping qualities indefinitely under extreme conditions. The finished cloth has a definite beauty and "different" hand. (Feels differently, we suppose. —ED.)

Infra-Red Heat Lamps

Three new infra-red heat lamps have been placed on the market by the Birdseye Division of Wabash Appliance Corp., Brooklyn, N. Y. Two of the lamps are clear, for use with the standard gold-plated or Alzac reflectors, but the third does not require any separate reflector, since it has its own reflector lining sealed inside to keep it free from oxidation and the collection of dust, dirt and fumes. The manufacturer states that the reflector lining keeps heat-reflecting value for the 6000 hour life of the bulb because it is made of pure solid silver which is sealed inside the gas-filled bulb.

Differing from incandescent lamps used for lighting, the filaments of the Birdseye infra-red lamps operate at lower temperatures, developing infra-red radiant energy at wave lengths which have high penetration. The unique property of these lamps, and of infra-red radiant energy developed, is their uncanny ability to penetrate deep down into the surface films of lacquers, paints and enamels to start

Here are 3 new infra-red heat lamps. Two are clear. The other one has its own reflector lining sealed inside.

Spiking EVERY FINISHING PROBLEM

● Finishes for woods, metals and plastics today constitute highly specialized fields, each of which is constantly developing new standards of quality, workmanship and artistic effects.

Glidden's leadership in industrial finishing comes from creating new and superior materials for every change in style and demand—new production speeds, new baking methods, new resistant qualities, new compositions, new types, new colors and designs.

You can "spike" any finishing problem, for any product, if you'll take advantage of Glidden's technical resources and wide experience. Just ask us to send a Glidden engineer to your plant.

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio
Branches or Factories in Principal Cities

TIME-TESTED
GLIDDEN PRODUCTS CARRY THIS FAMOUS MARK OF QUALITY

GLIDDEN

the baking and drying process from the inside out, instantly, and uniformly.

Complete information on Birdseye heat lamps and on the subject of baking, drying and dehydrating with infra-red radiant energy is contained in bulletin No. 121B, just issued by the Wabash Appliance Corp., Brooklyn, N. Y.

Tests Fire Extinguishers

For the first time an approved testing device, known as the Testall Pump, is available for determining the maximum safe life of fire extinguishers. Previously, unsafe extinguishers may have been inadvertently continued in service; or good ones may have been discarded prematurely. The Testall Pump tells exactly the condition of each extinguisher by testing hydrostatically the shell and hose for strength, through the hose and nozzle. It is approved by the Factory Mutual Laboratories with a definite procedure for testing: 1) extinguishers, 2) engines, 3) hose, and 4) sprinkler systems.

As the Testall Pump flushes interior and exterior of the extinguisher, the testing work can be readily combined with regular maintenance. Flushing and testing water flows automatically through the pump, without the pump's operating. Only a few strokes are required to bring the extinguisher up to the test pressure.

According to the manufacturer, American - LaFrance - Foamite Corp., Elmira, N. Y., the Testall Pump is rapid in operation and can be carried easily by one man.

Finding out whether extinguisher is okay.

Metal Coating to Prevent Rust

Marlox, a plasting coating for metals, is being introduced to the industrial market by Marley Chemical Co., 983 E. Milwaukee, Detroit, Mich. For protection against rust, corrosion and rot, it has long been known that certain plastics meet the most severe tests with regard to saltspray humidity, acids and other attacks, so much so, that they almost approach the protective qualities of ceramics, without the disadvantages of these hard porcelain enamels.

Unlike most plastic coatings which are ornamental, but lack weather-resisting qualities, Marlox is a plastic coating of the structural type—used not as glamourtization, but rather for doing a tough job. This product is used either as a priming coat, or purely for protection against rust and corrosion.

Chief among the merits claimed for Marlox is almost complete absence of porosity. Marlox is successfully applied by spraying, painting or dipping, forming a thin, flexible coating on any metal to which it is applied—so flexible that it is not affected to any noticeable degree by the temperature changes. The same quality of flexibility, plus unusual adhesion, makes Marlox of particular value in coating welds. Here it furnishes adequate protection against corrosion and rust-creepage in the seams and folds, right up into the welded spot. As a base coat, Marlox provides a tough, dura-

21% SOLIDS

faster-drying

FIVE GALLONS AT DRUM PRICE

NOROY

LACQUER W-1082

Noroy lacquer 1082 is an economical non-royalty, faster-drying wood finish that accommodates faster production schedules.

It produces a beautiful high build alcohol-proof finish. Naturally it saves time, labor and money. It is an outstanding cold-check resistant lacquer that shows no breakdown after fifteen cycles of cold-check testing at +105° to —5° Fahrenheit.

Make your own "Convince Yourself Test."
Order five gallons at drum price today.

SPEEDROY

Speedroy is a new fast-drying, royalty, flexible lacquer conforming to the Rudd high standard of uniformity, quality and performance. It is supplied in gloss, rubbing, non-rubbing, flat, satin and dead flat.

For Complete Information—Write to

RUDLACO

RUDD LACQUER CORPORATION
127 MAIDEN LANE, NEW YORK
Factory—Rahway, N. J.

ble bond between metal surface and any kind of finishing coat.

Marlox, used to inhibit rust and corrosion, is applied to a thickness of ½ of 1/10,000 of an inch. Used as a prime coat, it is applied to a thickness of 5/10,000 of an inch. Dilution with Solveso is recommended, a gallon of finished mixture covering 1,000 to 2,000-sq. ft. of metal surface.

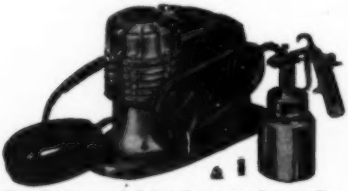
Tests by automotive manufacturers showed complete protection of Marlox-coated metal kept in a humidity chamber for six months, with average relative humidity of 98½%, at a temperature of 94° F. A similarly coated panel was subjected to salt spray test for 600 hours and stood up perfectly.

Marlox dries quickly, and can be handled in five or ten minutes after applying. One hour's drying time is recommended where possible, before applying enamels or paints.

Marlox may be applied to all types of metals and alloys including steel, cast iron, aluminum, aluminum alloys, magnesium alloys, copper, brass, cadmium plate and galvanized or zinc-coated steel. Marlox is also used to waterproof concrete.

Portable Spray Outfit

The W. R. Brown Corp., 5720 Armitage Ave., Chicago, Ill., announces a portable all-purpose spraying outfit called the Speedy Sprayer No. 890. According to the manufacturer it is built on an advanced diaphragm principle; always delivers an ample supply of clean oil-free air; has no oily rings, pistons or cylinders to come into contact with the air or paint.



Has factory-sealed bearings; needs no oil.

The outfit is suitable for spraying any sprayable materials, or it can be used to supply compressed air for some other purpose. It can also be used as a vacuum pump.

Dust and Fume Collector

The Claude B. Schneible Co., 3951 Lawrence Ave., Chicago, Ill., recently announced a new line of unit dust collectors in 2,000 to 10,000-c.f.m. capacities.

These new models, designated Type "UC", consist of a fan; five spray curtain tower; pump; settling chamber and sludge ejector-conveyor.

The collector tower is of conventional multi-wash design employing water in a cyclonic wash action to absorb dust and fumes on impingement plates and vanes.

It is claimed that heavy particles are precipitated in the tower inlet cone of the collector, fines being collected and washed back into the sludge chamber by the downward moving water spray curtain.

The collector proper has no moving parts so has nothing to wear, clog, burn or break.

The sludge ejector-conveyor, operating at slow speed, removes sludge from the precipitation chamber, dewaters it in the conveyor boot and discharges it into any convenient receptacle.

The unit occupies a minimum of floor space and it is claimed is low in cost and requires a neglible amount of maintenance.

Decorative Finishes Bulletin Offered Free by Hilo

Beautiful patterns and attractive color combinations are shown in sample chips of "Hammerkraft" and "Rip-pl" (wrinkle) finishes in new informative bulletins recently published by the Hilo Varnish Corp., 47 Stewart Ave., Brooklyn, N. Y. These are bake finishes for metal. Information in the bulletins explains what products these materials are most suitable for, and gives detailed directions about how to mix, apply and bake the finishes. For example, 2-color combinations or shadings may be obtained by applying, over a coat of Rip-pl of one color, a thin coat of enamel of another color.

Just name YOUR WOOD PRODUCT....

M&W makes a lacquer for it.

Maas & Waldstein makes lacquers for most products, processes, and service requirements of the woodworking industry, including:

- **Lacquers that rub and polish**
- **Lacquers that give a fine dull finish without rubbing**
- **Sanding sealers, and combination one-coat stain-and-sealers.**

Good build, excellent cold-check and weather resistance are features of many M & W wood lacquers.

Send for full information on finishing schedules for your products.

Maas and Waldstein Co. · Newark · N. J.

Branch Offices and Warehouses . . 1658 Carroll Ave., Chicago 1228 W. Pico Blvd., Los Angeles

LACQUERS PIONEERS IN PROTECTION ENAMELS

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

Rubbing Stones

We are interested in obtaining sand rubbing stones to be used for smoothing off plaster filler preparatory to finishing steel safes. Will you please advise us the names of several companies from whom this material may be obtained?—S. M. Co.

By letter, we are submitting the names of manufacturers of abrasive stones, but for the purpose you mention — namely, smoothing off plaster filler preparatory to finishing steel safes, we wonder if you have ever considered the use of one or more portable machines for this purpose—for example, a portable sanding and rubbing machine? These small machines have reciprocating pads on which abrasive paper can be clamped and they are extensively used for the type of work you mention. Some are driven pneumatically from your compressed air line, while others are driven electrically from an extension cord connected to an electric-light outlet.

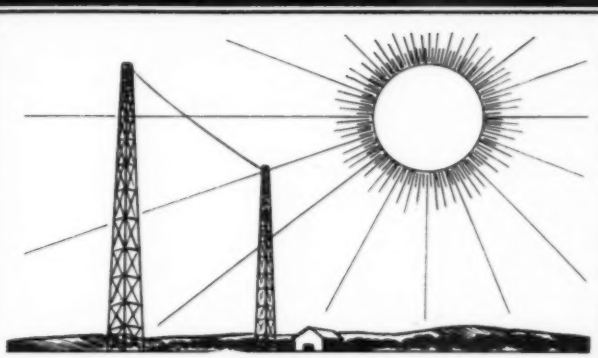
The merits of these small power machines are that they save labor and they do the work rapidly, easily, safely and effectively—therefore they are economical on production work.—ED.

Sanding Problem

We manufacture two articles, for two different concerns, which require considerable hand - sanding due to the shapes of these articles. I believe we can speed up this operation by using a machine similar to a buffing-jack and using some sort of an abrasive by which the operator holds the article against the wheel (which should be very soft and at least 6-in. wide). After a short time and some practice, I believe we could increase the speed of this operation considerably.—A. T. Co. (Moulded Fiber Products).

Perhaps your problem can be solved by using a drum of brush-backed shredded sand-cloth which fits on a buffing spindle, as shown in the accompanying illustration. At first glance this machine might be mistaken for a directly-motored buffing machine. Each end of the extended motor spindle carries a special sander head — a rotating head loaded with eight wound-up lengths of shredded sand cloth supported by stiff fiber brushes front and back. Work is brought into contact with the strips of abrasive which are backed by radially-extended brushes on the surface of the revolving head.

The effect of this sanding principle is developed by two, somewhat opposing, actions of the brushes. First, there is the yielding action of the bristles, which allows the abrasive strands of shredded sand cloth to arrange themselves to the contour of the work. On the other hand, there is the resistance of the bristles which support—or in other



SUN SPOTS and STATIC

Finish your product so that it doesn't "sun-spot" . . . and you will eliminate "static" in your sales! Use Stanley 1617, the ORIGINAL crystal clear, non-spotting lacquer . . . which practically eliminates "spotting out" on cast metals and crystal spotting of oxidized finishes. Stanley 1617 has exceptional adhesive qualities . . . resists wear and exposure without discoloration . . . is hard and lasting. Try Stanley 1617 on YOUR product . . . under YOUR conditions. Order a five gallon testing sample NOW. It will be billed at the drum price. Address Department "E"

THE STANLEY CHEMICAL CO.

EAST BERLIN CONNECTICUT

Lacquers · Enamels · Synthetics · Japans

A SUBSIDIARY OF THE STANLEY WORKS NEW BRITAIN, CONN.

words back up—the strips of abrasive during the cutting.

Further details about this ingenious machine, which is adaptable to such a great variety of work ordinarily performed slowly and expensively by hand sanding or hand steel-wooling, can be obtained by writing the Vonnegut Moulder Corp., Indianapolis, Ind.—ED.

A "Piano Finish" for Caskets

While reading your March issue of INDUSTRIAL FINISHING I came across the question and answer on how to put a piano finish on walnut and mahogany caskets (page 68). This is right in my line of work. I would like to tell you how I finish walnut and mahogany in what our trade calls a "piano finish." (Editor's Note: This came in too late to be published in the April issue, which contains another casket foreman's reply to the same question.)

First the casket must be puttied with a colored putty to match the desired shade, then sanded smooth with No. 6/0 or 7/0 finishing (abrasive) paper. After sanding, it should be dusted off well; then it is ready to be stained.

The stain I use is the new type of stain referred to as U. P. S. or fast-to-light stain. This stain is made up of concentrated dyes and denatured alcohol. It contains its own sealer, thus eliminating the wash coat which is needed when other types of stain are used. Some of the shades used on walnut and mahogany are blended as follows:

Oriental Walnut

Yellow (Conct. dye)	(oz.) 1
Orange (Conct. dye)	1½
Denatured alcohol	32

Dark Oriental Walnut

Orange (Conct. dye)	(oz.) ½
Black (Conct. dye)	½
Denatured Alcohol	32

Light Walnut

Red (Conct. dye)	(oz.) 2
Orange (Conct. dye)	24
Black (Conct. dye)	8
Denatured Alcohol	94

Medium Walnut

Red (Conct. dye)	(oz.) 2
Orange (Conct. dye)	28
Black (Conct. dye)	12
Denatured Alcohol	86

Medium Red Mahogany

Red (Conct. dye)	(oz.) 1½
Yellow (Conct. dye)	½
Orange (Conct. dye)	1½
Black (Conct. dye)	¾
Denatured Alcohol	16

Dark Red Mahogany

Red (Conct. dye)	(oz.) 3½
Yellow (Conct. dye)	½
Orange (Conct. dye)	3
Black (Conct. dye)	1½
Denatured Alcohol	32

This stain is sprayed on. After letting it dry for an hour, we sand the stained surfaces very lightly; then fill with paste filler, using about 12-lbs. of filler to the gallon of reducer. This is a very important operation when making a finish of this kind, because if the pores are not filled properly the finish will look "hungry".

After filling, we allow the surfaces to dry over night before applying the sealer coat. We use a lacquer sealer and spray it on freely—what you call a "wet coat". It is left to dry from two to three hours before hand sanding.

Our workmen use felt sanding blocks and No. 8/0 sandpaper to sand out all traces of orange peel. Then the surfaces are dusted off with an air duster, the workmen being careful to remove all dust from the corners and carvings.

Next comes the clear lacquer—about four wet coats. This should

be a lacquer containing about 27% solids, reduced two parts lacquer to one part of good grade of reducer. A cheap lacquer evaporates too fast to allow the lacquer to flow out properly. The last coat of lacquer is followed with a mist coat of clear reducer.

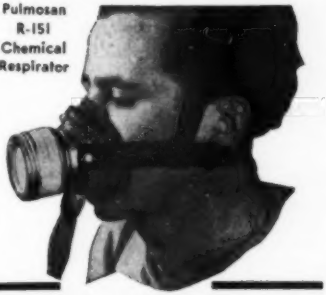
The lacquered hardwood casket should then stand at least four days before being rubbed. We rub with No. 320 wet-or-dry sandpaper, using water as a lubricant with Ivory soap for a softener. After it is rubbed down, we finish off with a portable rubbing machine. We apply rubbing compound to the surface and use a rotary disc fitted with a sheep's-wool pad to rub or buff the finish. Then we clean up the buffed finish with a good cleaner and polish. This process produces a finish that has depth and a very high polish.

A "piano finish" can also be obtained by using two or three coats of rubbing varnish over a varnish sealer. When varnish is used, it should be left to harden for at least nine days before rubbing. The rubbing is done with pumice stone and water; then the surfaces are polished out with rottenstone.—W. S. KOCH.

More on "Melamine"

We have read with interest the question raised by one of your readers regarding melamine and your informative reply on page 70 of your April issue of INDUSTRIAL FINISHING. There is so often misunderstanding regarding the names of new chemical products that we are glad that you provide your readers with this service.

The name "melamine", however, is not our trade mark although we are the only manufacturers of the product in this country. Actually



"Double Feature" Protection

For highest safety and lowest service cost, use the R-151 Chemical Respirator. Its chemical cartridge purifies fumes—extra filter prevents clogging. Thus, cartridge lasts longer, needs less replacement. Give your spray men the R-151 Respirator for safety, comfort, durability. Get prices.

PULMOSAN SAFETY EQUIP. CORPORATION

Dept. IF, 176 Johnson St., Brooklyn, New York

A Superior Varnish for Fir or Gumwood

RX-239 SPEED - DRY VARNISH

A vastly improved, production-proven clear gloss varnish. Dries in 2-3 hours even in cold weather. A single spray coat provides the build and appearance of 2 coats of ordinary varnish.

For economy as well as for faster production, you will find that one coat of our special lacquer sealer followed by one coat of SPEED-DRY VARNISH is an unequalled combination for spray finishing fir or gumwood.

MARTIN VARNISH CO.

900 WEST 49TH PLACE

CHICAGO

REMOVER

- Quickly removes all kinds of finishes and coatings.
- Saves time, labor and material.
- Easy to apply—no after cleaning.
- Doesn't raise grain nor discolor.

SPECIAL OFFER 1 gal. testing sample at drum price F. O. B. Newark, N. J.

(Also manufacturer specially formulated non-inflammable coatings.)

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.
251 MADISON AVE. NEW YORK, N. Y.

New TRUCK TYPE OVENS

BY

GKS

STANDARD SIZE Ovens (three basic sizes) may be increased by standard multiple units AT ANY TIME—probably the answer to YOUR baking production problem.

GEORGE KOCH SONS, Inc.
EVANSVILLE, INDIANA

it is one of the true chemical names of the raw material, another being 2, 4, 6-triamino-1, 3, 5-triazine. A number of resin manufacturers including ourselves are now offering melamine formaldehyde resins. Our own trade name for these resins is "Melmac." Because of the highly interesting valuable properties of resins of this type, they are now being widely employed, not only in the manufacture of high grade baking enamels but in the manufacture of molding, laminating and adhesive compounds.

You have our permission to publish this letter if you wish to provide your readers with this additional information and further light on the correct usage of the name "melamine".—AMERICAN CYANAMID & CHEMICAL CORP.

Finish for House Assemblies

You are probably familiar with the problems of finishing that present themselves to the rapidly growing industry of house fabricating. However, to state them briefly, we must have available finishes to stand up on the exterior, roof and interior of buildings that can be applied in the factory by the most modern methods and permit handling, packing and shipping, plus assembly later.

The common types of house paints on the market are entirely unsatisfactory. For the first time it is now possible to control the factors in finishing structural pieces. If forced-drying is needed it can be done. If automatic coating equipment is indicated, it can be so arranged. All this, however, is dependent upon the finishing material to be applied. We would appreciate it greatly if you would

write us immediately, listing a few firms best qualified to solve this problem. . . . I await with interest your suggestions to this matter.

For years I have read your magazine and have established you in my mind as an authority in the field . . .—H. C. Corp.

You do not tell us whether the surfaces to be coated are wood or metal. However in either case we suggest that you investigate a synthetic finish to be sprayed on and force dried—in fact, baked if applied on metal. Additional suggestions are being sent by letter.—Ed.

Dyed Shellac Finish For Hangers

We are sending you a small piece of wood which shows a finish that we are now using on some of our wooden garment hangers. The lumber is green elm, steam bent and dried. We are now using a red aniline dye with orange shellac, tumbled on the pieces for the finish.

For some reason the red or orange color often rubs off the finished hangers, although we use the same amount of dye in each process job.

We wondered if you could recommend some stain or dye, which would work with the orange shellac, and produce a satisfactory finished color, similar to the enclosed? —W. C. Co.

Before endeavoring to analyze your problem, we would greatly appreciate having just a little more information concerning the process that you are using. For instance, we would like to know if you are using a water stain or some sort of

DO YOU WANT A WHITE 2-COAT JOB AT A 1-COAT PRICE?

SEA-LAC Short-Bake Snow White Enamel covers solidly in one coat and bakes out to a hard, scratch-proof film that will not crack, peel, or turn yellow. A leading testing laboratory report shows that it has a light reflection factor almost equal to a 2-coat job. Here is a material made to order for lighting fixture manufacturers . . . for metal cabinet work, stoves, kitchen utensils . . . for all steel coating jobs.

Which of These Short-Bake Schedules Do You Prefer?

No. 1: Bakes in 20 minutes at 275° F. No. 2: Bakes in 15 minutes at 300° F. Either schedule will give you the effect of a 2-coat job at 1-coat cost. SEA-LAC Short-Bake Enamels are available in tints and colors as well as white and also in a special 2-coat finish which will resist temperatures as high as 500° F. with no harmful effects.

Test SEA-LAC Short-Bake Enamels on your own finishing line. ***Compare*** the results with your present standards. Tell us your requirements and we will send you enough material to make a satisfactory test. Write today.

DURALAC CHEMICAL CORPORATION

84 Lister Avenue, Newark, N. J.

SEA-LAC

FORM - A - ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM - A - ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

FORM - A - ROC

Baking schedule is of great flexibility, permitting from 5 - 50 minutes at 250 - 375° F.

FORM - A - ROC

No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

FORM - A - ROC

MADE BY

THE VARNISH PRODUCTS CO.

5288 Harvard Avenue

CLEVELAND, O.

acid or ammonia solution. We would also like to know the amount of aniline to a definite amount of liquid that you are using in your formula.

It is possible that in the event of your using water stain, you are not getting sufficient penetration. On the other hand if you are using an acid or ammonia solution with your aniline dye, it may be that due to the steam bending, the fibers of the wood are closed and in those spots on the wooden hanger where the pores and fibers of the wood have been forcibly and closely compressed, the dye is not penetrating sufficiently and, therefore, rubs off.

If you will give us a few more details with respect to your complete finishing formula, we will be very glad to do our best to solve your problem, or at least give you suggestions which may prove helpful in your difficulty. — SHELLAC INFORMATION BUREAU.

Pickled Pine

Recently we have been interrogated by one of our sales representatives in respect to a finish which supposedly is being used for woodwork and furniture, and which is called "pickled pine." We are not certain whether this is a name for some finish with which we may be familiar or whether it is a new one, and if you have any information in respect to it we would be very glad to have it.—K. V. Co. (Finish Mfr.)

Pickled pine is white pine made colorless by bleaching, then stained to a mild clean grayish tone and coated with clear lacquer—followed by rubbing and polishing with wax. Bleaching is necessary to remove

yellow tones from the pine. The wood grain shows through clearly and effectively but no trace of yellow or amber appears. Some of the manufacturers of wood-finishing materials have developed schedules and methods for producing this finish with their excellent materials. —Ed.

Acid-Proof Finish

We are interested in obtaining a protective coating for steel skids, to protect the metal from the corrosive effects of 25% to 50% concentration sulphuric acid. Our skids are of 7-gauge pressed steel and are moved by means of electric trucks. The under side of the skid is therefore subjected to severe abrasive action each time the truck platform slides under the skid to pick it up. The top of the skid also is subjected to abrasive action by sliding material across its surface.

The cost of the treatment or coating used in protecting the skid must be relatively inexpensive, since the present depreciation on the skids amounts to about $2.25 per year.

Any suggestions you may have concerning the solution of this problem will be greatly appreciated.—P. L. Co. (Engineering).

Yours is a very difficult problem —chiefly because of the abrasive action you describe. One company suggests a zinc or lead coating for your steel skids.

Another concern offers an acid-resistant paint that is related to rubber, but admits that, because of the abrasive action, the painted skids would have to be repainted from time to time where the abrasive action rubs off the coating.

AT SMALL EXPENSE

you can enlarge your profits by dressing up your product with . .

CLAREMONT

FLOCKS

Cotton — Wool — Rayon

Hundreds of novelty items take on a new appeal with a coating of Flocks which cost little to apply but enable you to get better prices and increased sales.

Applied by spray gun or the silk screen method, all objects treated acquire new beauty, whether wood, glass, metal, paper, or plastic.

Write for color card and samples.

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

The country's leading manufacturers

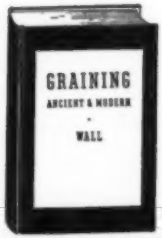
BLACK
SYNTHETIC AND LACQUER

THE Randolph line of 'Blacks' is most complete. Send for a shade card showing—Dead, Satin, Semi-Gloss and Gloss Black, also Texture Enamel, Crackle and Crystal Lacquer in novelty finishes especially developed for fine scientific instruments. Prompt deliveries.

Dopes—Thinners
Lacquers—Synthetics

RANDOLPH
FINISHING PRODUCTS CO.
Carlstadt New Jersey

It's the latest



A New BOOK on HAND GRAINING

224 Pages, 6x9-in. Illustrated

Its contents are conveniently divided into 50 chapters—all about the art of hand graining to reproduce the exact grain, figure and color of variously-cut cabinet woods. All of the information is thorough, practical, easily understood and interesting. The book is bound in stiff red covers and lettered in gold.

PRICE, $5.00 POSTPAID

Practical Publications, Inc.
222 E. Ohio St. Indianapolis, Ind.

Overspray Breaks Into Blaze

I'm wondering if you can give me any information in regard to flat varnishes catching fire? It seems to be a spontaneous combustion. First, let me give you details as to how my varnish is used. I thin it with substitute turpentine and spray it. The fumes that hit the walls seem to have a powder effect and are not "gummy" like I think flat varnish should be. I have had it catch afire on the walls; also, in the exhaust pipe and on the ground where the overspray falls. On a hot sunny day it will also catch afire on the outside of the building.

I use all precautions to avoid fire. I line my spray booth regularly once a week with new paper. Also I clean the exhaust pipe and take away all waste varnish around my spray booth.

Realizing the danger that this could cause, I take it very seriously and I'm asking you for information concerning this trouble.—L. M.

We advise you to take up this matter with the company from whom you purchase your material. Possibly the material is lacquer or partly lacquer and the overspray from varnish and lacquer is being laid on in alternate layers over the surfaces that catch afire. You may find it necessary to change material—or spray this material in a separate booth that has its exhaust ending in water. Really a modern water-wash spray booth would be the safe place in which to spray it.

Suggestions or comments from others will be welcome, in reference to the above problem.—ED.

Finishing Hardwood Caskets

IN THIS short article I will describe our method of finishing oak or any open-grain hardwood in clear lacquer or synthetic material.

First, all the dents, cracks and nail holes are filled with a suitable putty or plastic wood. After this dries for from one to two hours, the puttied surface is sanded smooth and dusted off clean.

Next, we apply a coat of natural quick-drying paste filler, rubbing the filler into the open pores by rubbing it crosswise with burlap or tobacco cloth. Then we clean off the surplus as usual, picking out accumulated material from all the inside corners and crevices—especially around and inside carvings, if these are used.

After allowing the wiped filler to dry from eight to ten hours, we spray the surface with a thin coat of sealer. This thin sealer is prepared by reducing regular sealer in the proportion of one part of sealer to three parts of reducer. The drying time for sealer depends upon the kind of sealer used. Some sealers dry very rapidly; others may require as long as eight hours to dry. I use no shellac in our finishing.

When the sealer coat is thoroughly dry we sand the surfaces with No. 280 or No. 8/0 sandpaper. The sanded surfaces are blown clean with an air gun and then given a coat of surfacer, which is sprayed on as heavy as possible.

If the top coat is to be a lacquer finish, I recommend using a lacquer surfacer; but if a synthetic finish is specified I generally use a synthetic surfacer or undercoat. The surface coat, when dry, is sanded smooth with fine abrasive paper

The Right Answer to Every

FINISH BAKING *Problem!*

DESPATCH BUILT

This Tunnel Type Continuous Conveyor Oven is baking finishes on washing machines. It illustrates Despatch ability to apply the material handling plan to suit the production flow with a minimum floor space. Despatch engineers can recommend the oven, the most suitable heating system and the proper material handling for your plant. 39 years experience and countless successful installations provide a background capable of giving the right answer to every finish baking problem.

WRITE FOR BULLETIN NO. 51 K

DESPATCH OVEN COMPANY

MINNEAPOLIS MINNESOTA

(No. 320 wet-or-dry) to prepare the casket for the top coats. Wet sanding will give the best results.

Where a cheaper finish is desired a synthetic surfacer can be used and sanded dry with No. 6/0 (220) or No. 8/0 (280) paper. This synthetic surfacer will give satisfactory results when synthetic enamel is used, but I do not recommend it for lacquer finishes, as lacquer should have a hard smooth base to obtain the best results.—W. S. KOCH.

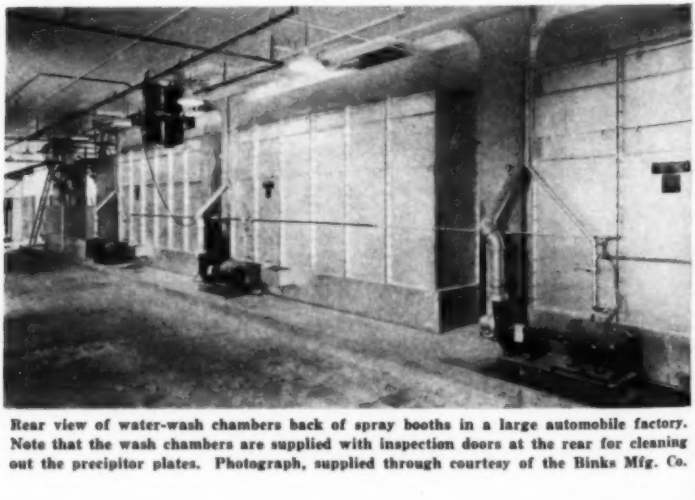
Care of Brushes

FINISHERS use thousands of dollars worth of brushes every year. A lot of money can be saved by preserving and prolonging the useful life of these brushes by taking care of them properly. Here are some do's and don'ts on the care of a paint brush.

Do not keep your brush in water and especially not in water stain, as most water-stain powders contain salt which is injurious both to the bristles and to the metal binding that many brushes have. Then, too, water and oil do not mix and, because of the oil content in the bristles, water will cause them to spread and become soft and flabby.

Do not put your brush in any material containing acids. (There is a special bleaching brush on the market now, but its life is very short due to the acid in bleaches.) Even the best bristle will be ruined if used in acid.

Do not leave a brush full of paint, varnish, lacquer, etc., when you lay it aside or put it out of service for some time. Remove all paint or coating material from the bristles. Wash it with the type of solvent used in such materials; for example, wash it in turpentine to remove varnish and paint; in lacquer reducer for lacquer; and in alcohol for shellac. I would never use kerosene or gasoline to remove varnish or paint from a brush.



Rear view of water-wash chambers back of spray booths in a large automobile factory. Note that the wash chambers are supplied with inspection doors at the rear for cleaning out the precipitor plates. Photograph, supplied through courtesy of the Binks Mfg. Co.

Use water to remove water paints, because many of the better water paints contain casein glue. After washing with water, rinse it in vinegar.

Do not let the brush rest on its bristle end as this will cause the bristles to curl, and the brush will not spread paint properly if it is in this condition.

Always dry your brushes with the bristle end hanging down and hanging free. After a brush has been used and has been thoroughly washed, it should be kept in turpentine, linseed oil or some vegetable oil suited for this purpose until the brush is to be used again.—H. W. CHESTER.

Design Articles for Easy Finishing

ALMOST everything manufactured today receives some kind of finish coating. However, in the design of many parts and products, it would seem that the finishing operations were not given any consideration. The handling of pieces in a finishing room can be made much easier, at times, by merely punching or drilling a hole at some point that will not show when the product is in service—or perhaps by placing a necessary hole at a different point.

To illustrate what I have in mind, let us consider the finishing of flat stock, such as shelving. In the finishing room these pieces are sometimes piled on racks in horizontal position. Paint is removed or smeared at the point of contact between the part and the rack. The dirt problem becomes more serious too, and oven capacity is not as great as it could be if the pieces were hung from hooks or from a conveyor.

WALKER'S
MODERN
PRODUCTION
FINISHES

Years of laboratory research have developed Walker's outstanding line of Modern Production Finishes. Every product has been tried and proven under the exacting conditions of production use. We list them here for your consideration.

- Chromate Primers
- Fillers, Surfacers and Undercoaters
- Synthetic Enamels to fit any production schedule. Air dry or short bake.
- Chlorinated Rubber Enamels
- Lacquers for every purpose
- Wrinkle Finishes and a large variety of other decorative, protective and specialty finishes.

Walker's Modern Production Finishes may offer an immediate solution to your present finishing problem. A wire, letter or phone call will receive prompt attention. Remember to "Call on Walker."

H. V. WALKER CO.
MODERN PRODUCTION FINISHES
Elizabeth, New Jersey

★ Keep flying paint spray out of worker's eyes and nose, and off their clothes with this Cesco Paint Spray Mask. Get better spray coverage faster at less cost! . . . Find out how large Plastacele window affords wide working vision. Hood attached to cap fits snugly over shoulders. Air tube permits compressed air connection if desired.

CHOICE OF 3 MODELS

No. 687—Lt. Wt. Muslin.
No. 688 — White Rubberized Cloth.
No. 689 — Heavy Khaki Cloth. Write for Circular. Now.

CHICAGO EYE SHIELD CO.
2367 Warren Blvd. Chicago, Ill.

FOUR-FOR-ONE SPECIAL

3 Complete Lacstix—will not lift in or under lacquer; most marvelous invention of the day. 1 Thick Hard Felt.

1 Bottle of Abrazo Concentrate

The "ELECTRO-KNIFE"

TOTAL VALUE $8.50 — YOUR COST $7.50

"Electro-Knife" is usable on 110 volt A.C. or D.C. Has new type refractory core construction that makes it practically impossible to burn out. Several types of interchangeable forged copper blades are available. One year guarantee against burn-outs. Comes equipped with a 10-ft. rubber cord, Flexible Cord Protector and Gripper Clip for holding "Electro-Knife."

A few drops of Abrazo on the hard felt and you can rub down burn-ins as smooth as glass. . . . Send for FREE instruction catalog card BOOK on FINISHING which has actual sample buttons for testing.

Finishine Laboratories, Inc.
319 S. Clinton Street Syracuse, N. Y.

If the part happens to be wood and must be finished on all sides, a hole bored at some inconspicuous point (perhaps near one end or edge) will enable the sprayer to hang the piece and coat it all around with one handling. These little points result in real economy and a higher quality of workmanship.

A careful analysis of how pieces should be handled in the finishing room will result in better work, lower cost, and a smoother flow of production.—F. GORSKI.

Auto Parts Cleaned, Coated and Baked

(Continued from page 15)

heater is provided with a damper which controls the make-up air, compensating for the volume of exhaust for volatile removal. The recirculating duct from the oven returns to this header and the dampers in the top of the heaters determine, by their setting, the volume of make-up air.

The burners on these oil-fired heaters are based on the principle of atomization. One burner on each heater remains lighted at all times while the other burner is controlled by the temperature controller. This insures complete combustion at all times. The control burner is readily lighted by the continuous burner, as it is operated on and off by the temperature controller.

This installation is in daily operation and is functioning satisfactorily in every respect.

Indicating Thermometers

An interesting and informative bulletin about indicating thermometers for use in industrial establishments can be obtained by writing The Foxboro Co., Foxboro, Mass.

Sharples Changes Its Name

A letter from the Sharples Solvents Corp., Philadelphia, Penna., states that:

"Effective April 28 we are changing the name of our company to Sharples Chemicals, Inc.

"This change in corporate name has proven necessary because of the great change in the nature of our business which has occurred over the past few years. Our production of many new and interesting organic chemicals and the development of new uses for these materials has made it desirable for us to be identified as a chemical company rather than as a solvents manufacturer. We shall, of course, continue to manufacture those products for which we have long been known and we will make the same effort to serve our customers in the future as we have in the past."

Los Angeles Furniture Show

The board of directors of the Furniture Manufacturers Association of Los Angeles have chosen the week of July 28th to August 2nd for the Summer Market at the Los Angeles Furniture Mart.

Acids from Coal Tar

Acids from coal tar, used in the manufacture of resins, plastics, disinfectants, soaps, printing inks, cutting oils, paint and varnish removers, are discussed in the leaflet, "Koppers Tar Acids" (Form TD-7), published (Jan. 23, 1941) by Koppers Co., Tar and Chemical Division, Pittsburgh, Penna.

Free Fluorescent Service

As everybody's fluorescent lighting requirements are different, only a qualified lighting engineer should recommend units for major installations. To make such service available without obligation to you, a new, free Lighting Engineering Service is introduced by the W. H. Long Co., 425 N. Clark St., Chicago, Ill.

It is necessary only to send them a simple sketch of space, measurements, ceiling height, outlets and wattage of each. Full engineers recommendations for proper lighting and complete cost information will be mailed to you without obligation. Address sketches direct to Mr. Binder. This free service should be of tremendous benefit to concerns who would like to consider fluorescent lighting with all essential information before them.

"Our Sterling Sander Paid for Itself in 8 Weeks"

—THE MERSMAN BROS. CORP., CELINA, OHIO

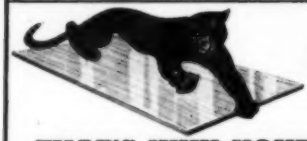
ONE HAND DOES THE WORK OF THREE!

"Our Sterling Sander paid for itself in 8 weeks through savings in labor and abrasives. Besides, it has solved one of our production bottlenecks."

Users everywhere report savings up to 75% on labor and abrasives, with the portable, air-driven Sterling SPEED-BLOC. This modern, high-speed sanding equipment enables one man to do the work of three—better, more uniformly, in a fraction of the time. The Sterling sands flat or curved surfaces—wet or dry—metal, wood or composition. Feathers spot jobs, sands filler coats. And it's easy to operate.

WRITE FOR FULL DETAILS!

Sterling
TOOL PRODUCTS COMPANY
359 EAST OHIO STREET, CHICAGO, ILLINOIS



IT'S TOUGH

THAT'S WHY YOUR PRODUCT NEEDS IT!

When your finish goes bad through hard knocks . . when "touch ups" and other repairs send finishing costs up—that's when you need Mar Proof Lacquer! It dries quickly to a tough transparent finish. Protects as no ordinary lacquer will do! Backed by a continuous record in production on maple, gum, mahogany and other cabinet woods. . . Test Mar Proof on your product—that's all we ask!

We recommend Mar Proof Lacquer Sealer for first coat.

THE SCHAEFER VARNISH CO., Inc.
Louisville, Ky.

Send for FREE Working Samples

Schaefer's MAR PROOF LACQUER

Repairing Dents

WHEN sanding wood in the white, you often find dents or blemishes in the surface. These can be easily taken out by swelling the wood. Apply a small amount of water to the bruised portion, let it stand a few minutes, then place a hot knife on the spot. This will bring up the depression if it is not too deep. Then, after it has become dry (within a few minutes) it can be sanded level with the surrounding surface.

Tobacco-chewing workmen sometimes take a small cud of wet chewing tobacco and place it over each dent or shallow depression and let it remain there until dry. If the dent or depression isn't too deep, this will raise it to the level of the surrounding surface.

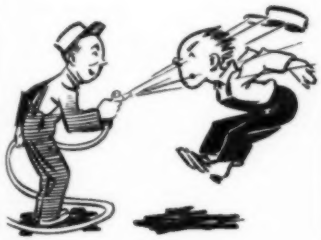
Deeper bruises or dents in wood are usually repaired by filling them with a repair filler or putty which can be bought on the market. When this is dry (four hours drying) it can be sanded to a perfect surface, and it will not shrink or crack.—F. W. WORTH.

Frolics in The Finish Room—1

THIS article pertains to the dangers of having smart alecks on the job that cannot be trusted. Air pressure, used to supply spray booths and air dusters for dusting off surfaces before spraying, turned out, in this case, to be a very dangerous play toy.

The scene where this story originates was in a large manufacturing plant making refrigerators. The air pressure, for some reason,

was left on at noon hour, when men often leave their own departments to see what is going on in other departments of the plant. It happened that one of these young fellows, after finding that the air



pressure was on, picked up one of the air dusters and playfully pushed the button on the duster, at the same time putting it into the face of one of his friends.

The built-up air pressure was so great, and with the duster being pointed close to the man's face, that one of his eyes was affected to the extent that eventually a surgical operation was necessary. Later on he lost the sight of this eye. Other playful accidents have occurred in this same manner. Industrial tools are not for tomfoolery. The foreman in charge should not allow anyone to make a play house of the finishing room and the equipment, materials and supplies therein.—F. W. WORTH.

E. H. Thompson with Yarnall Paint

The Yarnall Paint Co., Grays Ave. West, Philadelphia, Penna., announces the addition of Mr. E. H. Thompson to its industrial sales force. Mr. Thompson has had several years of experience in the industrial finishing field, and is well-equipped to serve the trade.

Airflo IT'S THE BUY
PORTABLE PAINTING OUTFITS
Never such dependable performance, such impressive standards of quality and stability in low priced equipment . . . Unsurpassed air output, "Oiled for Life" N-D bearings, dual blower system, twin air cleaners . . . Try, then buy AIRFLO at new low prices.

CROWN SPRAY GUN MFG. CO.
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GRAINING PLATES
bring out the
QUALITY you
have built in
YOUR PRODUCT

AMERICAN RICHWOOD PRODUCTS CO.
(FORMERLY AMERICAN ELECTROTYPE CO.)
Graining Plate Division
104 E. MASON ST. MILWAUKEE, WIS.

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscellaneous industrial plants where production finishing is a major operation in parts and products manufacture.

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EDITORIAL

No Shortage of Materials Expected, Chemist Says

No reason now exists to anticipate any serious curtailment in automobile production due to shortages of finishes, plastics or miscellaneous chemicals, Dr. James K. Hunt, of E. I. du Pont de Nemours & Co., told a regional meeting of the Society for Testing Materials, in Detroit, last month.

Dr. Hunt said current shortages in certain automotive chemicals were artificial, or temporary, in character. In some instances, he said, they have been caused by some consumers overstocking because of fear of insufficient future supplies, and in others the cause was lack of processing equipment rather than of raw materials. He said these shortages should vanish as new plant facilities under construction are completed.

"If the consumers of finishes will use judgment in buying," he said, "and not create an emergency by injudicious overstocking, it is our honest feeling that there is no real cause for worry as regards the raw materials situation in the finishes industry.

"Shortages have actually developed as regards several important materials, due to difficulties in getting supplies from abroad or to priority action by the government. To date, however, these shortages have been taken care of by substitution of other materials on which a sufficient background of knowledge has existed in the industry to enable the substitution without any loss of quality, so far as we know."

He mentioned tung oil, perilla oil and imported natural resins among the materials for which satisfactory substitutes have been provided, either of domestic or South American origin.

He said there is no visible shortage of cotton linters, despite the activities in smokeless powder manufacture; if a shortage should develop, linters could be replaced with woodpulp in making nitrocellulose lacquers.

The supply of nitric acid, he said, should be ample upon completion of new plants now building, providing consumers do not overstock.

Aside from unpredictable gov-

ernment requirements, said Dr. Hunt, it is expected that the chemical industry will be able to provide plastics sufficient to meet even a larger demand for automotive plastics than is now evident.

He added that the motor car industry, and for that matter all industry, "is in an extremely fortunate situation today in comparison with the situation that obtained during World War I."

"Practically every important industrial, agricultural and medicinal need," he said, "is now being filled by American factories on American soil and will, I believe, continue to be filled despite the wars overseas."

Waste and National Defense

* In these days of National Defense preparation, the reduction of waste assumes a much greater importance than ever before—not so much because waste of material means lost money, but because it means lost labor, lost capacity, etc., which might have been expended on other projects vital to our Defense Program.

Let us take an example of waste of finishing materials. Suppose that the XYZ Co., using a certain quantity of baking enamel each year, uses finishing methods such that their material utilization is only 50%. That is, the XYZ Co., in their finishing operations, waste half of the enamel they purchase in overspray, rejects, incompletely emptied drums, etc. What would it mean if changes could be made in their finishing methods to increase their utilization from 50 to 75%?

It would mean first that the XYZ Co. would order less enamel to do the same job as before. This would mean less handling within the plant. The labor thus saved could be used on other things. It would mean less storage space required. The extra space could be used for storing other materials. It would mean that the railroad or trucking concern which delivered the enamel could use the extra shipping facilities for other items. It would mean extra drums or cans for other uses. It would mean that the manufacturer of the enamel could produce more finishing materials for other purposes.

And so, ad infinitum. The good results of less wastage of enamel by the XYZ Co. would extend all down the line.

We all know that industry can do and is doing its part in our Defense Program. In the finishing industry we can do our part. We can do it best by producing quickly and efficiently—by keeping down waste. —W. G. S.

Paints for Identification, Guidance and Warning

* Most people—those who are associated with finishes and finishing as well as laymen—usually think of lacquers, enamels, japans, etc., in terms of protection or decoration only. True, the bulk of the various organic finishing materials manufactured today is used for those two purposes.

However, there is a third use, and incidentally one which accounts for an increasingly sizable part of the annual consumption. This third use, for lack of a better name, has

* Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

Blanchit
REG. U. S. PAT. OFF.
WOOD BLEACH
Special Industrial Formulas
L. R. van ALLEN COMPANY
(Patent Licensee) CHICAGO

been called the *functional* use. For example, each year large volumes of special paints are used for marking roads and streets—center lines, stop lines, cross walk lanes, etc.

Certainly such traffic paints are not applied for the protection of roads, and most assuredly they are not used for decoration. Their use, therefore, falls into the class just mentioned, namely the functional one.

There are numberless other examples of finishing materials used for functional purposes. Stenciling paints, identification paints for marking various stocks in warehouses, pipe lines in factories, certain camouflage paints, and even the luminescent paints presently used in Europe for guidance during blackouts, fall into this category.

The functional use of finishing materials has grown by leaps and bounds and this only serves to illustrate that the finishing industry is not a decadent one. New uses for finishing materials are always arising and finishing materials and procedures are always being developed to meet the demands. As the years have gone on, the finishing industry has grown to be a major one and, with the ingenuity and efforts of finish manufacturers and those who apply finishing materials, it will continue to grow.—W. S.

Finishes for Plastics

★ Due to the defense program many industries that use aluminum, magnesium, zinc and chromium have been asked to discontinue the use of these metals wherever they can. The refrigerator and automobile industries use a large amount of aluminum, and are now turning to plastics. The automobile industry has already passed the word along that less chromium will be used on the 1942 models.

Plastic mouldings and grills can be replaced more cheaply than metal, and can be finished in many attractive and durable colors.

During the coming year you will find plastics replacing many of the decorative metals. There is no worry of rust or costly replacements with plastic.

Several finishes are now available for plastics, and more are in the laboratory stage. As the demand for them becomes greater, these latter will be placed on the market. Many of these finishes cover in one coat. Some are of the air-drying type, while others are intended to be baked. For any plastic that will stand a temperature of 200° F. or more, I would suggest that a bake finish be used, especially for exterior use.

One concern that I have in mind has announced a finish for plastics, of either the molded or laminated type—to meet demands for color, long exterior or interior durability, mar resistance and economy of application. These specifications were met by the development of a new coating of the Bakelite type, which requires only one coat, and which gives a colorful coating with a porcelain-like finish—a glossy, hard, tenacious film. It is recommended for spraying. The coating will adhere to either a sanded or natural

glossy surface. It sets in about 20 minutes, and air-dries hard in about 12 hours.

The bake finish requires about one hour of oven-baking at a temperature of 250° to 300° F. Usually one coat is sufficient. This material is available in practically any color. It comes ready for normal application. The coating stands a severe weathering test on exterior exposure without undue loss of gloss or film failure, and it has exceptional resistance to abrasion and marring.—RUSSELL DAVIS.

Use A Finish That Gives A Good First Impression

★ When a customer first looks at a piece or a suite of furniture he gets an impression — usually a strong impression. He immediately likes or dislikes the furniture, and the finish certainly makes a vital impression on him because he sees it first and generally touches it first.

Of course, design, construction, interiors, etc., play an important part in the sale of furniture, but it stands to reason that the best designed and constructed piece of furniture in the world can be a dismal failure, so far as sales are concerned, if it is poorly finished.

A lot of good furniture is designed, constructed and sold today that allows the manufacturer only a very small profit—sometimes no profit at all—simply because it isn't finished in keeping with its design and quality of construction. Many times this same furniture could be sold at a nice profit if it had been properly finished.

If you want to sell a quality product you certainly have to make it look like quality. Of course, the type and quality of finishing materials used generally determine the kind of finish you get. For instance, it wouldn't be practical to use the same type of top coating on an expensive 18th Century suite that was used on a highly polished modern "Borax" suite.

Many manufacturers are finding that the cheapest finishing materials are not always the best, and that it is certainly desirable to use a material that is in keeping with the quality of suite it is used on.

Poor supervision of workers in the finishing room which, in turn, results in poor workmanship, is sometimes the cause of an inferior finish. Of course, I realize that it isn't possible to use the most expensive materials on the cheapest suites, but it is up to the foreman finisher to be alert and to find out, as far as possible, about the quality of the material he is using. He should try to determine, as far as it is within his ability, whether or not his company is getting the type and quality of materials that are most suitable for the quality of furniture he is finishing. Also, he should see to it that he is getting the best possible workmanship from his men.—H. W. CHESTER.

SUPER-KAMEX Sensational FINISH
New improved furniture and cabinet finish. Combines best features of Varnish and Lacquer without faults of either. Can be sanded in hour. Clear, gloss, semi-gloss or flat. FREE—Write for sample and proof-panel.
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706 East 19th St. Kansas City, Mo.

MITTS PROTECTS SKIN
When applied to hands before starting work . . Dries quickly and shields skin like an invisible glove. Protects hands from grease, paint, oils, lacquer, dirt, etc. Easily removed with soap and water. MITTS is safe and economical. Guards hands from irritating materials which cause industrial skin troubles. A generous free sample of MITTS sent on request. Write today.
MITTS MFG. CO., 367 E. 45th, Bklyn., N. Y.

Coating Small Parts in "Whirling" Machine

* Finishing all kinds of small parts by the use of the centrifugal or whirling machine has increased greatly. Whereas the jewelry trade was quick to adopt this method of finishing, certain other industries have not taken very great advantage of it. This finishing process produced many surprises in 1940 in that it made possible low-cost finishes on items not previously considered adaptable to this method.

A little intelligent experimentation with materials and procedure is all that is generally required. Good finishes are being produced on larger and larger articles and there is no doubt that larger machines will be built to enable this process to be adapted to still larger products. Where it can be used, the process is a revelation in speed of production, economy of materials, and neat operation. All this with an attractive finish too. Consider this method of finishing if you have large quantities of small parts or products to finish. Manufacturers of the machines are glad to demonstrate on your product.—HARRY DANIELS.

Free Book on FINISHES

Tells all about new finishes. Shows two ways to get body and economy of varnish with speed of lacquer. Many other valuable suggestions. Write for your copy today.

M. L. Campbell Co.
706 E. 19th St., Kansas City

WE RECOVER YOUR
SOLVENTS & THINNERS
from . Sludge . Waste . Wash . Spoiled Lacquers, etc.

Each customer's shipment, whether one drum or a carload receives PROPER and SEPARATE TREATMENT. Write to:—

SOLVENTS RECOVERY SERVICE
Lister Ave. & Brown St., Newark, N. J.
or
HAMMOND CHEMICAL SERVICE,
241 Brunswick St., Hammond, Ind.

Better Sanding of Wood Helps Toward Better Finishing

* Cases are continually coming up of finishes peeling right off the wood. Many of these are in plants that go to considerable care and expense to produce a good finish. A large number of these have been proved to be due to improper sanding of the bare wood, particularly where birch and maple are used.

Mechanical sanding with worn-out sandpaper can produce a surface that is practically burnished, and many a finisher has been misled into thinking that this is a good surface upon which to build a finish. It is difficult to get adhesion to such a surface, particularly when pigment stains or glazing stains are used—and such stains are generally used on maple and birch. Pushing the schedule by applying the sealer or topcoat before the stain is thoroughly dry will aggravate the trouble. When peeling does occur under such conditions, the stain often comes right off with the film and the bare uncolored wood is revealed.

The solution to this problem, simple enough, is to use the proper grade of sandpaper for finish sanding, perform an adequate but not excessive sanding operation, and change the sandpaper before it is worn out. A little careful coaching of the sanders should result in a better surface for finishing, and a savings in sanding labor and sandpaper.—HARRY DANIELS.

What About Experience, Skill and Age of Workmen?

Some manufacturers believe that they should hire and keep only those employes under the age of 40, but it is the opinion of the president of a large manufacturing company in Chicago, Ill., that products are made better because of the long years of service of the men who build them. He believes that there is a direct ratio between the quality of the product and the length of service behind the men that produce the merchandise. There is no arbitrary age, according to this company, when a man is not efficient. Their records show that experience has more to do with precision efficiency than a definite arbitrary age.

The company is the Kellogg Switchboard & Supply Co., manufacturers of telephone systems and electrical equipment, which requires an unusually high degree of careful expert workmanship. It is a precision business. The company knows from its many years of experience that because of the highly technical nature of its products, the men with the longest service records are apt to be more efficient and have a real understanding of the customers' problems. Like other important businesses, it is found that the longer men work the more efficient they become.

Among the company's hundreds of employes, 78 have been with the firm for 25 years or longer; 10 of this number have a service record of at least 40 years each. Five of the workmen are 70 years of age or more. *A man is known by the company he keeps, and a company is known by the men it keeps.*

Advertisers will appreciate it if INDUSTRIAL FINISHING is mentioned.

★

PERFECTION

No, Custombleach is not perfection. It is a simple and honest wood bleach that quietly does a better job than anything else. Custombleach works according to your directions and never strikes. It may not be perfection, but it is better than trying to control a temperamental and ordinary bleach. Custombleach is economical and guaranteed by

Kenneth O'Meara

KENWOOD BRANDS LABORATORY

Asheville, N. C.

Wood Pattern Finish

A NEW and different type of clear and colored finish for wooden patterns, models, molds, etc., has gained considerable use during the past year. Orange shellac, the time-honored finishing material in most pattern and model shops, has always left something to be desired in water-proofness, abrasion resistance and heat resistance of the resulting finish, yet the pattern maker could find nothing better for his purpose.

Nitrocellulose lacquers could not be applied easily by brushing and tended to peel off easily under the moist conditions of the foundry, once the film was broken through. Synthetic enamels do not dry quickly enough nor hard enough to permit the pattern to be placed in the

sand within an hour or two after being finished.

The new type of finish combines all the good properties of shellac and lacquer, with the elimination of their faults. Tests have shown that the new finish is five times as effective as shellac in excluding moisture from the wood and is three times as resistant to abrasion as shellac, yet it can be applied and handled in exactly the same way as shellac. Foundry sand does not stick to it as badly as to shellac; patterns hold their true shape and dimensions better, and there is less need for refinishing of patterns. In addition to being available in a ready-to-use form in clear and standard shades of vermillion, black, yellow, green, red and aluminum, the new finish can also be had in a concentrated form to be mixed equal parts with ordinary orange shellac.—M. J. PEARCE.

STICK SHELLAC
SPECIAL GIFT OFFER
Unequalled for filling holes, scratches, mars on wood, metal, marble. FREE Electric knife with 12 doz. order. Write for color card.
M. L. Campbell Co.
706 East 19th St. Kansas City, Mo.

NALCO DRITHERM CARBON FILAMENT LAMPS
BEST for Infra-Red Ray Drying
Nalco Dritherm Lamps are the carbon filament type . . proved for years in therapeutic and industrial practice as providing maximum emanation of infra-red ray within desirable penetrating band. Made only by—
North American Elec. Lamp Co.
1030 Tyler Street St. Louis, Mo.

Cleans Color-Stained Hands

HERE'S a good hand wash for stainers that have to handle aniline colors all day long and are unable to get their hands clean. This also applies to non-grain-raising stains.

Make up a solution of the following in a 1-quart jar. Do not mix it in metal containers; a glass or granite crock will answer the purpose. Mix 1-oz. of permanganate potash in one quart of water. Then, in another container, mix 2-oz. of sodium bi-sulphate in one quart of water.

Before using either of these mixes on your hands, first get your hands soapy with soapy water well rubbed in; then submerge your hands into the solution of permanganate potash. Do not become alarmed when your hands take on that appearance of rich reddish brown. Rub it in briskly. Then submerge your hands and rub them well in the second solution. The reaction of the second solution upon the first will at once bleach your hands to a clean white appearance, removing all of the color from them. After the last solution has been well rubbed in, wash your hands in clear water.

With a knowledge of these simple solutions there is no need for a man to leave his work, at the end of the day, with dirty discolored hands.—F. W. WORTH.

License Plate Folder Free to Auto Paint Shops

Because of the big success of last year's "automobile license" folder, a 1941 edition has been issued and is now available to Auto Paint and Repair Shops. License plates of each state and the District of Columbia are reproduced in color.

License plates are arranged in al-

phabetical order along with the capital city of each state. Also provided in front of each license plate is a small square for checking off the different licenses as they are observed along the highway.

The front cover carries the wording "For Repaint and Repairs bring your car to ....." At the bottom is space for imprinting the name and address of the automobile shop distributing these folders to their list of prospects for repaint and repair

The folder has 8 color-pages, 2¾x4-in.

work. Many shops using this "business-getting folder" last year, found it a natural in bringing customers into the shop.

The Minnesota Mining & Mfg. Co., Saint Paul, Minn., which has reissued this folder for 1941, will supply Auto Paint and Repair Shops with a reasonable number of folders with the name and address of the shop imprinted thereon. A supply may be had by writing direct to the Advertising Department of the company.

Infra-Red Electric Bulletin

A 6-page bulletin of information about infra-red radiant heating for curing paint coatings on products has been prepared for distribution by the C. M. Hall Lamp Co., 1035 E. Hancock St., Detroit, Mich. The bulletin is attractively illustrated in two colors; page size is 8½x11-in.

***discolored lacquer restored . . . . . use* DECOLOREX**

Don't throw away your discolored lacquer material, turned green during brass or copper dipping process. Add DECOLOREX and lacquer will be restored to original color for further use. Full lacquer composition and adhering qualities retained. Not harmful to metal. Gives 50% more life to lacquer. Send us sample solution of your used lacquers and let us show you.

Seaboard Chemical Products Co.
1301 Hearst Tower Bldg. Baltimore, Md.

GRAINING ROLLERS

CUSTOM BUILT

Let us help you with your graining problems.

We specialize in Graining and Varnish Rollers.

GRAINING ROLLER CO.
1121 Cavalry Ave., Detroit, Mich.

Geo. A. Martin of S-W Co. Given Award

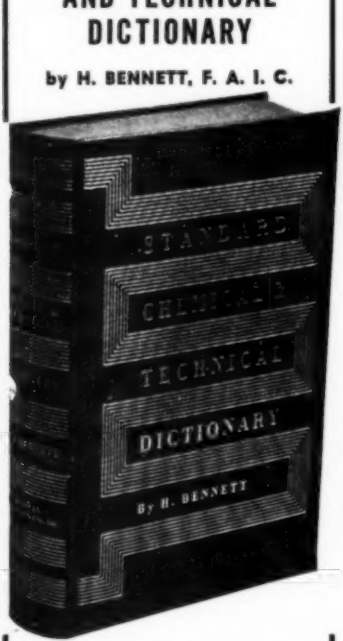
The Cleveland Chamber of Commerce members bestowed their coveted annual Award for Public Service on a hustling 75-year-old industrialist, Mr. George A. Martin, Board Chairman of the Sherwin-Williams Co. Too busy even to appear at the Chamber meeting which honored him, Mr. Martin last week was at sea on an inspection tour of Sherwin-Williams Co.'s South American plants.

Mr. George A. Martin

"George Abraham Martin", the citation reads, "distinguished and outstanding business administrator, humanitarian, patron of the arts and culture, for many years active in civic affairs, generously contributing to the betterment of business and living conditions in Cleveland. Through his efforts many talented persons from every section of this country have found opportunity,

STANDARD CHEMICAL AND TECHNICAL DICTIONARY

by H. BENNETT, F. A. I. C.



Gives condensed definitions. Includes about 25,000 definitions. Synonyms, trade names and cross-references are included. Definitions and data are the latest and authoritative. Abbreviations, symbols and contractions used in chemistry, physics, etc., are given—also the general official rules for naming of organic chemical compounds and their pronunciation. Contains 638 pages.

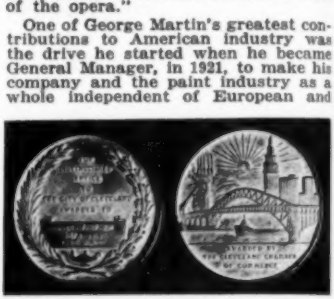
POSTPAID - - - $10.00

INDUSTRIAL FINISHING

222 East Ohio St. Indianapolis, Ind.

which otherwise would have been denied them, to become famous artists of the opera."

One of George Martin's greatest contributions to American industry was the drive he started when he became General Manager, in 1921, to make his company and the paint industry as a whole independent of European and



The two sides of medal given Mr. Martin.

Asiatic raw materials. Clearly remembering the dyestuff and chemical shortages of World War days, he has spent the two decades developing domestic supplies and synthetic materials to make the country independent of foreign wars and blockades. Synthetic resins, pigments, colors, chemicals and drying oils have all become American made products, insofar as his company is concerned. One specific example of how this self sufficiency drive has worked out is seen in the replacement of Chinese tung oil with a processed castor oil which can be obtained from castor bean plantings in our Southern states.

Porcelain Enameled Iron to Replace Defense Metals

The Porcelain Enamel Institute, operating through its technical committees, has surveyed the field of defense materials, both critical and strategic, and finds many of them can be released by intelligent substitution of porcelain enamel on iron or steel.

The home appliance field is the most important and the refrigerator is the immediate problem. Ice trays have been made of porcelain enamel. Even a year ago this would have been considered impossible but today, due to technological advance of the industry, it is being done.

Many other examples of possible substitution are revealed in a 3-page news release which can be obtained by writing the Porcelain Enamel Institute, 1010 Chandler Bldg., 1427 Eye St., N. W., Washington, D. C.

Classified Advertising

FOREMAN FINISHERS—

If you know someone who understands practical woodfinishing, has pleasing personality, ability to follow training which our Industrial Finishes Division will give in our new High Speed Finishes as well as regular line, we would like you to show him this ad or write us regarding him. A good income is assured if he can work intelligently with our small well-rated paint company. Outline previous experience, send photo in letter to IF-854, care Industrial Finishing.

LACQUER SALESMAN WANTED

With industrial following, by a medium sized growing lacquer and synthetic manufacturer in the East. Excellent opportunity for wide awake man who can handle good specialty items. All replies will be treated confidentially. Address IF-855, care Industrial Finishing.

LACQUER SALES REPRESENTATIVE

Wanted by an established eastern manufacturer of Lacquers and Solvents. Splendid opportunity for man with following. Commission and drawing account. In reply state volume and territory covered. All communications confidential. Address IF-832, care Industrial Finishing.

SALESMAN WANTED

To sell the best quick drying VARNISH yet devised. Dries like lacquer, and is TOUGH. Whole line paint also. Address IF-856, care Industrial Finishing.

POSITION WANTED.

Have had eighteen years selling industrial finishing materials to the wood and metal trade, and have an established following among volume accounts in the middle states. Address IF-862, care Industrial Finishing.

A GOOD SALESMAN WANTED

By an Eastern manufacturer of a complete line of Royalty and Non-Royalty woodfinishing materials; preferably, at this time, a man with experience who is willing and can demonstrate his products among Southern furniture manufacturers. In reply, please give complete details regarding past experience and connections. We are not interested in drifters and only want to hear from experienced men of good character and personality who have established connections in the furniture trade. Our own organization knows about this advertisement. Address IF-861, care Industrial Finishing.

POSITION WANTED

As foreman finisher, with some live progressive furniture plant. High-grade furniture manufacture preferred. Have had many years' experience as foreman, and understand piece work, bonus system and production. Expert in colors and up to the minute finishes. Also, have had experience as service man and salesman. Address IF-860, care Industrial Finishing.

INDUSTRIAL SALESMEN WANTED

One for Indiana, and one for Chicago, to represent a nationally known paint, varnish and lacquer manufacturing company, enjoying an excellent industrial business. Send complete business history and state compensation wanted. Address T. E. MURPHY, care Pratt & Lambert, Inc., 75 Tonawanda St., Buffalo, N. Y.

FINISHING EXECUTIVE OR EQUIPMENT SALESMAN

Thoroughly familiar with spray finishing equipment, both automatic and manually operated on either wood or metal. Also, thoroughly familiar with sales problems of metropolitan New York. Address IF-858, care Industrial Finishing.

SALESMEN NOTE!

We have a territory in Illinois and another in Kentucky-Tennessee open on our new high-speed wood finishing process, as well as our regular line of industrial lacquers and synthetics. Some established accounts in both territories. Commission basis, with small weekly advance if desired. If interested in "going places" with a progressive but small paint company, outline previous experience and send photo in letter to IF-857, care Industrial Finishing.

MANUFACTURERS AGENCY

Representation available, Detroit area, for a few lines not competitive to a line of Industrial Finishes complete except Furniture finishes. Address IF-859, care Industrial Finishing.

SALESMEN AND DISTRIBUTORS

The Alexander Milburn Co. has opening for qualified representatives for

The famous "Hollow-Air" OM Spray Guns
Welding and Cutting Torches
Inter-changeable Tips
Latest Improved Regulators

Favorable Terms.

THE ALEXANDER MILBURN CO.
Established 1907
1402 W. Baltimore St., Baltimore

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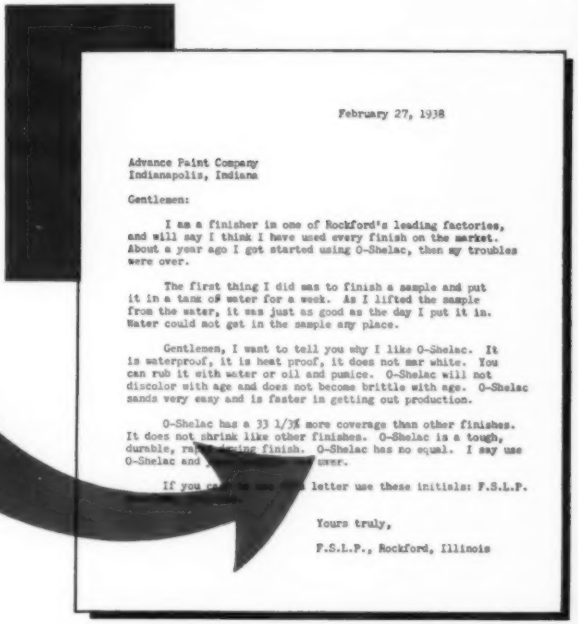
"Please advise us if you could furnish us with 8 copies of the 'Industrial Finishing', February issue. We would like very much to have our sprayers read the article entitled 'More About Modern Spray Finishing.' If you can supply these we will be glad to pay for them."—P. L. D., Cincinnati.

"We are quite impressed with this magazine and kindly ask that you enter our subscription for one year to Industrial Finishing for which our check in the amount of $2.00 is enclosed."—J. P. M., Shelbyville, Ky.

"O'SHELAC HAS NO EQUAL"

So writes this furniture finisher—

THIS letter was written in 1938, about one year after his company started using O'Shelac. This concern is still using O'Shelac today; in fact, they are using more now than ever before because they are using it for both undercoat and final finish. Take a tip from this finisher who also says, "Use O'Shelac and your troubles are over."



February 27, 1938

Advance Paint Company
Indianapolis, Indiana

Gentlemen:

I am a finisher in one of Rockford's leading factories, and will say I think I have used every finish on the market. About a year ago I got started using O-Shelac, then my troubles were over.

The first thing I did was to finish a sample and put it in a tank of water for a week. As I lifted the sample from the water, it was just as good as the day I put it in. Water could not get in the sample any place.

Gentlemen, I want to tell you why I like O-Shelac. It is waterproof, it is heat proof, it does not mar white. You can rub it with water or oil and pumice. O-Shelac will not discolor with age and does not become brittle with age. O-Shelac sands very easy and is faster in getting out production.

O-Shelac has a 33 1/3% more coverage than other finishes. It does not shrink like other finishes. O-Shelac is a tough, durable, rapid drying finish. O-Shelac has no equal. I say use O-Shelac and you will never [illegible] user.

If you [illegible] letter use these initials: F.S.L.P.

Yours truly,

F.S.L.P., Rockford, Illinois

ADVANCE PAINT COMPANY

Manufacturers of Wood & Metal Finishing Materials

INDIANAPOLIS, INDIANA

FINISHED WITH GENUINE

SYNTHETONE

A PRODUCT OF SOUTHERN VARNISH CORPORATION
ROANOKE, VIRGINIA

talk about SPEED

● One of our Synthetone customers finishes his furniture with a coat of sealer and a coat of SYNTHETONE No. 1-296 . . .

He sprays the SYNTHETONE at

At it enters the oven (140° F.)

It comes out at He rubs and polishes the finish at

sees the furniture crated; and it is on its way to his customers at

How's that for speed? And yet, quick as it is, this amazingly economical SYNTHETONE is vastly superior in quality to either varnish or lacquer. Don't experiment — **Use SYNTHETONE.** It is time-tested by large-scale production experience.

SOUTHERN
VARNISH CORPORATION
Roanoke, Virginia

REFLECT QUALITY
SOUTHERN PRODUCTS